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The Journal of the British Veterinary Association

Patron: Her Majesty the Queen

Principal Contents

CONGRESS AT CAMBRIDGE

THE BRITISH SMALL-ANIMAL VETERINARY ASSOCIATION

THE HARRY STEELE-BODGER MEMORIAL SCHOLARSHIP, 1955 THESIS: MEAT HYGIENE AND VETERINARY PUBLIC HEALTH IN DENMARK AND GERMANY
J. M. Olivant

THE P.D.S.A. PRIVATE BILL

CONGRESS PROGRAMME

IN BRIEF

NEWS AND COMMENT

CORRESPONDENCE

Contents

Editorials :

Congress at Cambridge 355
The British Small-animal Veterinary Association ... 356

General Article :

The Harry Steele-Bodger Memorial Scholarship, 1955 Thesis : Meat Hygiene and Veterinary Public Health in Denmark and Germany 357
J. M. Olivant, M.R.C.V.S., D.V.S.M.

In Brief :

Developments in Equine Parasitology 356

The British Small-animal Veterinary Association 373

In Parliament : The P.D.S.A. Private Bill 377

Congress Programme 374

Current Literature :

Abstracts 378

News and Comment :

UFAW Easter Congress 379
The B.O.C.M. Poultry Award 379
Professor Bernard Gorton 379
Personal 381
R.C.V.S. Obituary 381
Coming Events 381
"The Little More and How Much It Is" 382
Addresses of Disease Infected Premises 382

Correspondence :

Diagnosis of Warfarin Poisoning by Chemical Methods 383
R. J. Garner, M.A., M.V.SC., F.R.C.V.S., A.R.I.C.

Animal Boarding Establishments Bill 383
J. M. Mitchell, M.R.C.V.S.

Endocrine Alopecia in the Dog 383
R. H. Smythe, M.R.C.V.S.

The Post of Public Relations Officer 384
An Applicant

Broadcasts by the Midland Radio Vet. 384
E. E. Herrod-Taylor, M.R.C.V.S.

Herd Infertility 385
I. B. Munro, M.R.C.V.S.

Displacement of the Bovine Abomasum 385
Colin Wood, M.R.C.V.S.
Colin J. Allison, M.R.C.V.S., B.V.MS.

Surgery of the Eye in Animals 386
G. T. Wilkinson, M.V.SC., M.R.C.V.S.

Right Aortic Arch Causing Oesophageal Obstruction... 386
N. R. Turnbull, F.R.C.V.S.

Diseases of Animals Act, 1950 386

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Congress at Cambridge

ON another page of this week's issue, we publish what must be one of the most ambitious Congress programmes in the history of the Association. The number of papers—30—is nearly twice that usually provided, and when the Proceedings come to be published, they should comprise a survey of veterinary practice and research over an unusually wide field. Our colleagues of the Eastern Counties Veterinary Society, who are hosts to Congress this year, have, clearly, taken very seriously the responsibility of exemplifying, in one of the greatest centres of Western learning, the place of veterinary science in contemporary knowledge, and of the veterinarian in the modern community. The programme they have arranged is a credit not only to them, but, through the British Veterinary Association, to the entire profession.

At a first reading it appears formidable, and certainly no delegate can expect to hear and to see everything. Nor is it intended he should do so. The intention has been to provide the greatest practicable variety so as to satisfy all interests, and so to arrange the sessions that kindred subjects do not clash with each other. An analysis of the titles of the papers indicates that this Congress, though in an academic setting, has a strong clinical bias, and that subjects of practical interest substantially outnumber those of more limited and specialised appeal.

There is one notable innovation. Each morning there are to be plenary sessions when eminent speakers, a number of them outside the profession, will read papers. The Provisional Committee are to be congratulated on persuading scientists of the calibre of Sir Solly Zuckermann, Professor A. L. Banks, Dr. T. R. R. Mann, Professor J. S. Mitchell, and others to give our profession the benefit of their learning and experience. It may be suggested, indeed, that it is from these plenary sessions the Cambridge Congress will gain its especial cachet, and veterinary surgeons over a wide area, even though they may not be able to attend the entire Congress, will wish to enjoy them.

Each Congress has its own peculiar atmosphere and flavour, deriving from the centre in which it is held and from the personalities and tastes of those who have the duty of organising it. The 1957 Congress may, perhaps, seem to emphasise the serious business of attending sessions at the expense of those social activities which, traditionally, make the annual Congress a human as well as a professional occasion. Be that as it may, there is logic in the intention of the organisers to provide a programme worthy of the new veterinary school, and worthy of the University of which it forms a part. It is but natural that those connected with it, as pioneers, are conscious of their duty to measure up to the traditions of seven centuries, and certainly they have spared no effort to do so.

Such leisure time as there is will at least be spent to advantage in this ancient city, whose architectural riches alone could absorb the entire week without being a tithe exhausted. In addition, thanks to the courtesy of individual colleges, those who have not so far experienced the pleasures of living in college will be able to do so—a fascinating change from the usual hotel accommodation. The customary formal social functions, the official reception, the banquet, and the President's reception are, of course, retained, and for those personal "get togethers" so much valued as each year comes round, members will be able to plan each day's programme for themselves, dividing it, according to preference, between attendance at some of the many sessions provided, and individual social enjoyments.

Now that the art and science of veterinary surgery are so diverse in their scope and so copious in their nature, it may be that the 1957 Congress at Cambridge with its 30 papers and tightly packed timetable will prove to be the turning of a page. The organisers have already done an immense amount of work, and will do much more. The thanks of all their colleagues are due to them.

The British Small-animal Veterinary Association

At a time of increasing specialisation it is not surprising that a new Association, intended to cater specifically for veterinary surgeons in small-animal practice, and for research workers in the same field has been formed. As reported on another page, its inaugural meeting was held on March 7th, when its general plans were discussed, and its officers elected. The emergence of the new Association is welcome, and it is to be hoped that all those members of the profession for whose especial interests it caters will become members. Nothing but good can arise from its decisions to keep records of current research, to abstract the world literature on small-animal subjects, to organise regional meetings where papers may be read and discussions held, and to be concerned with that section of professional " politics " which includes the treatment of domestic pets.

While it was not expressly stated at the meeting, the new Association should provide a most valuable adjunct to public relations, in that its members, more than other veterinary surgeons, come directly into contact with the mass of the general public. In this country, affection for domestic pets is common to all sections of the population, and everything which adds to the knowledge and the effectiveness with which veterinary surgeons treat pet animals when they are hurt or ill redounds to the credit of the entire profession. Every member in small-animal practice is a public relations officer; for the impact made upon the individual animal owner by skill and sympathy is far more telling, in the long run, than all the photographs and " stories " in the popular press.

It is not proposed to enter into controversy but the best answer to " free " clinics is to illustrate the superiority of the service provided by the qualified veterinary surgeon. The extent to which the British Small-animal Veterinary Association helps to prove this superiority will be one of the measures—and not least in importance—of its success.

In this connexion a very proper emphasis was placed by the inaugural meeting upon its relationship with the B.V.A. and with the R.C.V.S. " It is considered undesirable and impracticable for the Association to act independently . . . its function should be to act as liaison between members of the recognised negotiating committees of those two bodies." In earnest of this intention, the chairman of the B.V.A. Small-animals Committee was a principal invited speaker at the meeting; and it will be noted that the executive committee numbers among its members two past-Presidents of the B.V.A.

The news columns of this journal will always be open to reports of the work of the B.S.A.V.A., and if, as it seems reasonable to hope, its members are stimulated to offer for publication clinical and other papers on small-animal subjects, they will add yet another to the list of their useful and welcome activities.

In Brief

DEVELOPMENTS IN EQUINE PARASITOLOGY

There is a definite seasonal fluctuation in the number of strongyle eggs passed by horses, high counts occurring during the summer and low counts during the winter (Poynter, 1954), a point worth noting in deciding the significance of nematode egg counts.

It is known that phenothiazine treatment reduces egg counts to negligible levels, but that five to six weeks after treatment, high counts may again be recorded. Gibson (1953) has suggested that this is due to the inhibited development of larvae in the mucous membrane of the large intestine, such larvae later entering the lumen of the gut, becoming mature, and commencing egg laying after the elimination of the original population. He pointed out the necessity for checking worm burdens about 10 weeks after treatment even when horses are not exposed to reinfestation.

Piperazine adipate is effective for removing mature and immature ascarids from horses (Sloan, Kingsbury & Jolly, 1954; Poynter, 1955a). Against *Trichonema* spp. it is 99 to 100 per cent. effective, against adult *Oxyuris equi* 50 to 60 per cent., against *Triodontophorus* spp. 50 to 60 per cent., against *Strongylus vulgaris* 50 to 63 per cent., but it is only 0 to 6 per cent. effective against *Strongylus edentatus* (Poynter, 1955a; Downing, Kingsbury & Sloan, 1955). It is given at the rate of 10 grammes per 100 lb. bodyweight, mixed in water, by stomach tube, but the majority of Thoroughbred horses accept it in bran mash where it is equally efficient (Poynter, 1955b). Piperazine citrate, phosphate, and 1-carbodithioic acid are also effective (Poynter, 1956a, b). The latter substance is an equimolecular compound of piperazine and carbon disulphide which dissociates in acid to give its components. In theory, it would be expected to expel any larvae of *Gastrophilus* spp. present in the stomach but no great anti-bot efficiency has been demonstrated practically.

In America, Talmage *et al.* (1953, 1954) found that commercial phenothiazine (green) suppressed the uptake of radioactive iodine by the thyroid of a number of species. Trum & Wasserman (1956) investigated this effect in horses, finding that therapeutic doses of phenothiazine (green) depressed the thyroid uptake of radioactive iodine whereas purified phenothiazine had no such effect. Low-level doses of green phenothiazine (2 g. daily) caused no depression in uptake either on the 18th or 30th day of continuous administration. The action of phenothiazine (green) is due to the available iodine it contains. Determination of plasma protein bound iodine revealed no subnormal values due to phenothiazine treatment, the study indicating that phenothiazine has little, if any, effect on thyroid function in the horse.

D. POYNTER (October, 1956).

(For references please turn to page 379)

The Harry Steele-Bodger Memorial Scholarship, 1955

MEAT HYGIENE AND VETERINARY PUBLIC HEALTH IN DENMARK AND GERMANY

BY

J. M. OLIVANT

Department of Veterinary Pathology, University of Liverpool

The author was the first holder of the Harry Steele-Bodger Memorial Scholarship, and the paper published below is his report to the British Veterinary Association on work done during the tenure of the Scholarship. For reasons of space the Appendices, and some of the illustrations have been omitted here. They will be found in the bound Report deposited in the library of the Royal College of Veterinary Surgeons. The author has compiled a set of notes on laboratory techniques in veterinary food control. These may be of value to undergraduate or post-graduate students reading meat hygiene. They detail information not otherwise easily obtainable, and are available, free of charge, on application to the Department of Veterinary Pathology, University of Liverpool.

Preface

THE object of this Report is to give an account of the work carried out by the author during his tenure of the Harry Steele-Bodger Memorial Scholarship for 1955, awarded for the purposes of studying Meat Hygiene and Veterinary Public Health in Denmark and Germany. It is a further object, and intended as the more important, to provide a record of technical information which may be of value to veterinarians engaged in Food Control, and lend practical support to the British Veterinary Association in its efforts to stimulate veterinary interest in this type of work. The Report has therefore been compiled in two main parts : the first, in the form of a brief account of the author's work during the Scholarship period, and a series of articles in the general field of Veterinary Field Control ; the second, in the form of technical appendices which detail some of the laboratory methods of value in the hygienic judgment of meat and meat products. The bulk of the Report is thus concerned with " Meat Hygiene " in the sense in which the term was originally used.

As an academic study in British veterinary schools, Meat Hygiene has scarcely attained the respectability afforded to more orthodox branches of applied science. Opportunities for serious study are few, and teachers rarer still. In this country, the application of pure science to practical problems of the meat industry has hardly ever been a matter for veterinary concern. As recently as 1949, Ginsberg & Robertson* drew attention to the underlying economic reasons for this situation, but it is difficult to exclude veterinary educationalists from a more direct responsibility than those authors cared to suggest. A great deal of scientific work has been carried out on the various aspects of meat hygiene by individuals or organisations with less claim to an interest in the subject than ever possessed by the veterinary profession. There is no doubt that our preoccupation with the control of animal disease, together with the concept of the veterinary " meat inspector " as only a link in the chain of disease control, has produced the present dearth of interest in the wider responsibilities of the profession in the hygienic production of meat and meat products. The proper control of meat supplies requires very much more than is included in the present dogma or practice of veterinary education, and if British veterinarians are to make a sound contribution to safeguarding the quality of the nation's meat supplies it is essential that the present scope of their training should be widened.

To this end, it is clearly desirable that veterinary schools should accept their responsibilities by providing a scientific background to the study of meat hygiene at undergraduate level, and in drawing attention to the technological and scientific problems arising from its study, provide research facilities for their solution.

So much was implicit in the award of this scholarship, and in the readiness with which leave of absence was granted to the author by the University of Liverpool. It is to be hoped that this small advance will be consolidated by an extension of the present facilities for the study of Meat Hygiene to other veterinary schools in Great Britain.

General Account of Activities

The main purpose of my study tour was to obtain first-hand experience of laboratory methods of Food Control and to study their application in the field. Methods of undergraduate training in Meat Hygiene and Public Health, together with a brief survey of administrative procedure formed secondary objects of study, and this brief account is intended to show how my time and the Association's money were spent in attaining these objects. In both Denmark and Germany there is so much of veterinary interest that it requires a conscious effort to remember the objects of one's visit, and it is fatally easy to waste a great deal of time in dilettante fashion. In Denmark, the bacon factories, dairies, pig recording farms, artificial insemination centres and many other institutions of international repute, all attract one away from the main purpose ; in Germany, whilst there is less that is known to be of general interest, there is sufficient to make an effort of concentration on one's chief interest absolutely essential. In Denmark especially, the general hospitality and friendliness offered to all English people sometimes made strict adherence to this principle somewhat embarrassing, and I had to emphasise repeatedly that the opportunity of studying Continental methods of veterinary food control was one rarely offered to British graduates, and that it was essential, therefore, to restrict my activities to this field.

* GINSBERG, A., & ROBERTSON, A. (1949). " Meat Hygiene." *Vet. Rec.* **61**. 9.

In all, some seven weeks (August 11th to September 29th) were spent away from England—limiting factors being the amount of money available and the arrangements that I had to make before leaving this country. The first four weeks were spent in Denmark ; the remainder in Germany and in travelling time. I found that the amount of the scholastic award made available to me by the B.V.A. was amply sufficient for a study tour of this length, provided that the cheapest form of hotel accommodation and modest eating habits were not exceeded. In fact, in Germany, the cost of living is so high that existence above this level was impossible on the budget scale I was able to make.

Should this type of visit be repeated by other graduates from this country, there is no doubt that a shorter period of time spent in Germany, and the inclusion of visits to Belgian and Dutch laboratories would add greatly to one's experience. This is said in no spirit of disrespect or ungraciousness for the kindly treatment I received from Professor Schönberg and his colleagues in Germany : indeed, Schönberg himself made the suggestion, and only questions of the expense involved in travelling prevented me from implementing it. Unless one is prepared to subsist at student level, Germany is too expensive for people in a similar position to myself.

I spent the first three of my four weeks in Denmark in Copenhagen, chiefly in the Department of Hygiene and Bacteriology at the Danish veterinary school. The head of this department—Professor Aage Jepsen—provided every facility for which I asked, and many for which I did not—and he was of course instrumental in making arrangements for me to spend some part of my time in the Aarhus municipal laboratory. This last was an especially valuable experience. The routine day in Copenhagen was usually divided between Professor Jepsen's Department and the City Public Health laboratories : from 8.0 a.m. to noon in the Hygiene Department, and from 1.30 p.m. until 4.0 or 5.0 p.m. in the City laboratories. The head of these laboratories —Mr. O. Winther, kindly placed some bench space at my disposal and it was during my time in both these places that I was able to practise the technical methods described in the Appendices to this Report. I found my time very fully occupied, and a constant source of delight in being able to spend so much of it discussing laboratory methods and all matters of meat hygiene with colleagues a great deal more experienced than myself. It was impossible not to be stimulated by the atmosphere of enthusiasm for this type of work, and I confess to a feeling of envy for the circumstances in which this work has come to be accepted—indeed, taken for granted. All the professional staff and many technicians spoke excellent English. Copies of many of the technical methods and of the administrative details of meat inspection were available in English. If not, they were translated, and it was generally made evident that Danes and Germans alike were pleased to find young British graduates taking an interest in what has become virtually a Danish or German field of study.

During my stay in Copenhagen I took the opportunity of visiting several smaller municipal laboratories whose work is principally concerned with meat or milk hygiene ; and of touring the Meat Research Centre in Roskilde and the Cold Stores Depot in Copenhagen itself. Visits were very frequently made to the Copenhagen city abattoirs and meat market. Descriptions or illustrations of all these will be found in the appropriate place. I made no attempt to visit bacon factories—possibly a strange omission !—but in fact none were easily accessible from the city and having seen many of them before it seemed much more in everyone's interest to concentrate on the laboratory aspects of my work.

My fourth week in Denmark—a part week in fact—was spent in the Municipal laboratory in Aarhus, Jutland. For technical reasons this was a most satisfying visit, and again each day was fully occupied with bench work or in discussion with Mr. P. Madelung, the Deputy Chief, or his assistant, Miss Merete Lange. It is certainly worth noting that Miss Lange was a very competent meat inspector ! During my stay in Aarhus I had the opportunity of visiting the J.A.K.A. canning factory and of meeting the Veterinary Officer in Charge (Mr. Johannsen), of visiting several food manufacturers' premises and, of course, of taking part in the routine work of a Public Health cum Food Control Department. Again, descriptions or illustrations of these will be found in the appropriate place.

I had arranged to begin my work in Hanover in early September and immediately made contact with Professor Schönberg. He is at present Rektor of the Hanover Veterinary School, and Professor of Food Hygiene—and the type of German scientist and teacher who sheds a kind of paternalism over his subject. After a few days of making introductions and of increasing astonishment at the re-building and re-equipping of the school, the remainder of my time was very fully taken up with laboratory work under Professor Schönberg himself, or his senior assistant, Dr. Walz. The routine was similar to that in Copenhagen—though the hours were longer—and most of my time was spent in taking part in the examination of the large amount of material that is sent to Schönberg's Institute. The emphasis throughout was on *technique* and the interpretation of laboratory results. There was more than sufficient here alone to fully occupy my time. It must be admitted that to obtain maximum benefit from discussion and argument requires a better knowledge of German than I possess—nevertheless, I was able to spend some instructive and stimulating hours in this way with both Schönberg and members of his staff.

Two days were spent working at the Central Veterinary Laboratory for Lower Saxony—a laboratory chiefly concerned with general diagnostic work, but at the same time carrying out a great deal of food control work. Several visits were made to the Hanover City abattoir (the remains of it) and to the abattoir laboratory. It was usual here to observe undergraduate classes in meat inspection. These, together with attendance at Schönberg's lectures in food control to a post-graduate class were an especially valuable experience. Indeed, the contrast between this class and its nearest analogue in this country was startling. Each of the graduates was of mature age and experience, and class discussions (barrages of questions) were exciting and amusing. There was a very liberal atmosphere about all the proceedings.

Several visits were made to food factories and meat markets and one to a Control Freibank plant in Hilde-

sheim. All were made with Professor Schönberg and it is a mark of his desire to see the British veterinary profession taking a leading part in food control that he spent so much of his time looking after my interests.

It is of course difficult—and perhaps undesirable—to record too many impressions gained from a study tour such as this. Many are of personal nature and the friendships formed equally so. At a personal level, however, there is no doubt whatever of the value of this type of tour, and the state of our knowledge and organisation of meat hygiene in this country is still at the stage where personal contact between individuals forms the basis for our future advancement in this field. On a wider basis I hope that there will be sufficient in the main parts of the Report to provide other graduates with a better knowledge of meat hygiene than I myself possessed before undertaking the tour. If there is sufficient to interest them in the subject, and to stimulate them to adopt it as their career, I think there can be little doubt that, in principle, the aim of the founders of the Harry Steele-Bodger Memorial Scholarship will have been satisfied.

Veterinary Food Control in Denmark and Germany

A. Training of Personnel

" Meat hygiene " is a collective study of the factors which influence the quality or safety of meat. It is concerned with the health and condition of meat animals during life and with their physiological state at death ; with the control of methods of slaughter and meat inspection ; and with the transport of meat, its handling, processing, preservation and disposal. Originating in Germany, where it was early recognised that the responsibilities for the hygienic control of meat could not be limited to the abattoir, meat hygiene has come to form one of the major studies of the undergraduate curriculum in continental veterinary schools. It is clearly wider in scope than " meat inspection " whose proper function is limited to the *ante-* and *post-mortem* examination of animals in the abattoir.

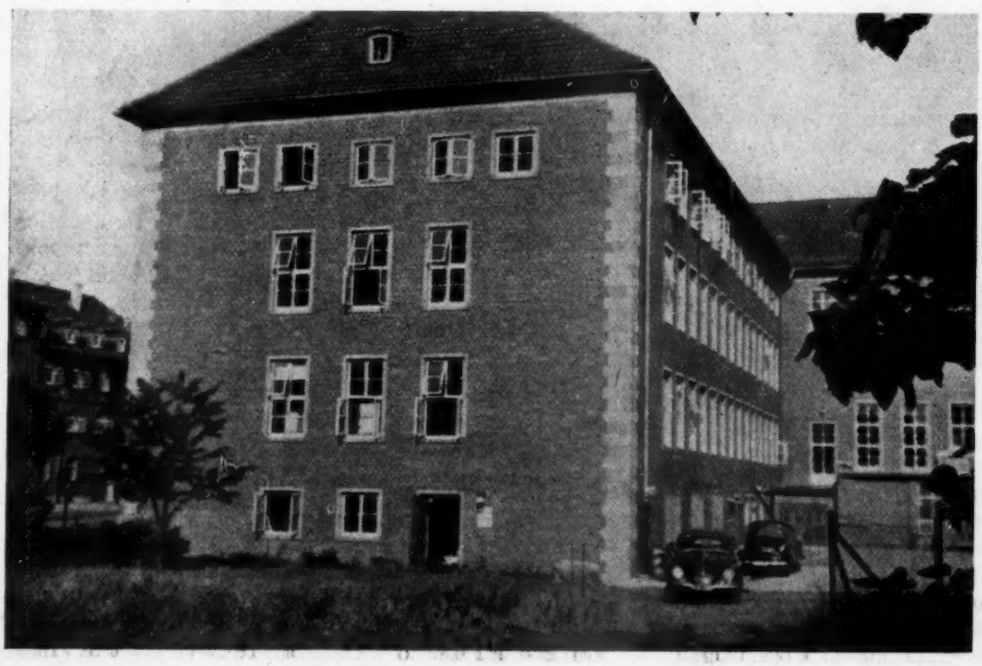
The development of meat hygiene as an applied science, largely independent of the traditional veterinary disciplines, now forms part of the history of the German and Danish veterinary professions. The outstanding features of its development are already well known.

In these countries present-day training in meat control is therefore undertaken under two separate aeges : Meat hygiene, which is the charge of a special department, or has become a specialised function of an existing department ; and meat inspection, which being primarily an exercise in applied pathology, remains the charge of a Department of Pathology, or of a meat inspector with wide experience in pathology. It is clearly sound teaching practice that there should exist the closest possible collaboration between the two.

In both Denmark and Germany, it has been regarded for some years as fundamentally sound practice to emphasise the need for continuity of responsibility in the hygienic control of meat, from the time the animal leaves the farm until its meat is handled in the kitchen ; and further, to emphasise that the practice of good meat inspection serves merely as one link—albeit an important one—in the whole chain of control. In contrast to the position in this country, it is now many years since veterinary participation in meat control was restricted to the abattoir, and the wider concept indicated here has been fully incorporated into present-day legislative and administrative practice.

There is no doubt that the present high standards of food hygiene in these countries result from the application of this view, *the initial stimulus for which originated in the veterinary schools.*

In the Danish Veterinary School, the teaching of meat hygiene is the responsibility of the Department of Hygiene and Bacteriology, of which Professor A. Jepsen is the chief. The department is generally



The Institute of Meat Hygiene, Hanover.

responsible for teaching and research in milk and meat hygiene, and the "hygienic" aspects of bacteriology and parasitology. It is staffed by a reader, four whole-time assistants, several whole-time research workers, and a veterinary officer from the Veterinary Directorate (Meat Inspection Division). In both its responsibilities and staffing, it is therefore analogous to some departments of hygiene and preventive medicine in this country. The department also acts as one of the four central laboratories authorised for the examination of meat and meat products, but an attempt is made to limit routine to the minimum necessary for the continuing experience of its staff.

The department differs in layout from similar departments in this country, chiefly in the amount of laboratory space reserved, and used, for undergraduate training. Other general features include three large working laboratories, several smaller ones, and a few private rooms for the staff. Separate weighing and centrifuge rooms are excellently equipped. Library facilities are excellent. There is abundant cold storage space in the form of refrigerators and chilling rooms. There is no shortage of essential equipment.

Most of the undergraduate teaching is carried out by senior members of the staff. About 80 hours are devoted to the study of milk hygiene, of which half are spent in practical work. The *lecture* course in meat hygiene is somewhat longer, one reason being the absence of textbooks of meat hygiene suitable for Danish conditions. Extensive use is made of stencilled sheets of lecture notes, and, in all, 55 hours of formal lectures are devoted to this subject. Meat inspection is dealt with separately by a member of the Veterinary Directorate in a course covering 100 hours. Classes are always held in an abattoir. (It was interesting to find that the undergraduate course was basically similar to that given at the Liverpool school over the past two years. It differed in being as long again as the Liverpool course.)

A great deal of attention is directed to post-graduate training. On at least one occasion each year the department provides a 14-day course in bacteriological meat inspection for whole-time meat inspectors. There are also longer courses available lasting six months, and restricted to graduates with at least two years' experience in food control work. These are similar in scope to the D.V.S.M., but very few veterinarians attend, chiefly because of the expense involved.

In addition, there are from time-to-time international courses for public health veterinarians, run under the auspices of WHO or FAO ; the last was a course (given in German) for Yugoslavians. The department has, of course, been an international centre for research and training in meat hygiene for some time.

The type of research undertaken by the department is very variable, and, in the last few years, its published work has included the following : Bacteriological contamination of pork in the slaughter-house ; the development of a new test for determining the efficiency of bleeding ; methods of determining the coliform count in milk ; the epidemiology of *C. bovis* in calves and cattle ; the effect of antibiotics on the intestinal flora of the pig ; metabolic studies on *Vibrio fetus*, and the development of a stable antigen for use in the ABR test.

Further, in its capacity as one of the four central laboratories authorised for the examination of meat and meat products, the department is always concerned with technological or hygienic problems affecting the meat industry. Attempts are constantly made to improve laboratory techniques for their study. One of the most interesting features in this connexion is a long-term study of the bacteriological standards applicable to a variety of meat or other food products.

Thus, at both undergraduate and post-graduate level, the training and research facilities in milk and meat hygiene offered by this department have no exact parallel in British veterinary schools.

At the Veterinary High School in Hanover, teaching and research in the general field of food hygiene are the special functions of the Institute for Food Science and Milk Hygiene, and are carried out under the leadership of Professor F. Schönberg. The Institute has no other responsibilities than the study of foods of animal origin, and both it and the many institutes like it were established in Germany many years ago. There are no similar veterinary institutes in Great Britain.

The fabric of the institute is quite new, and for the time being also houses the Departments of Botany, Pharmacology and Clinical Pathology. This is a purely temporary expedient rendered necessary by the extensive bomb damage suffered by the whole veterinary school.

There are three large working laboratories, together with several smaller ones for the use of visiting research workers or undergraduates working for their doctorates. Each of the laboratories is fully equipped for research in food science, and one contains a small milk pasteurisation plant and overhead rails and hooks for hanging carcases. *A completely equipped experimental slaughter hall* in the basement of the building provides unusually excellent facilities for meat research.

The institute has experienced considerable staffing difficulties in recent years, and, apart from its chief, four whole-time assistants comprise the whole teaching and research staff.

Undergraduate instruction in meat hygiene occupies six hours weekly for the last three semesters of the course—some 240 hours in all. However, many formal lectures deal with meat inspection legislation, and great emphasis is laid on this part of the course. Ample provision is made for the practice of laboratory methods which may be of value in the hygienic judgment of meat foods. Bacteriological meat inspection, food poisoning and the technology of prepared meat products are dealt with at length. In addition to theoretical instruction, students are required to undertake whole-time work in an abattoir for a period of eight weeks during a long vacation, and the final examination in the practice of meat inspection and in meat hygiene is very searching. As might be expected, the standard required is far higher than would be thought necessary in this country.

Post-graduate courses are regularly provided for graduates proposing to enter the State veterinary service. These extend over a three-month period, and are of a general nature, but much of the time is devoted to a more advanced study of meat hygiene. It is proposed to make this course mandatory for all entrants to the State service, and for all city veterinarians.

It is perhaps characteristic that the publications from this institute should be so numerous. In recent years,

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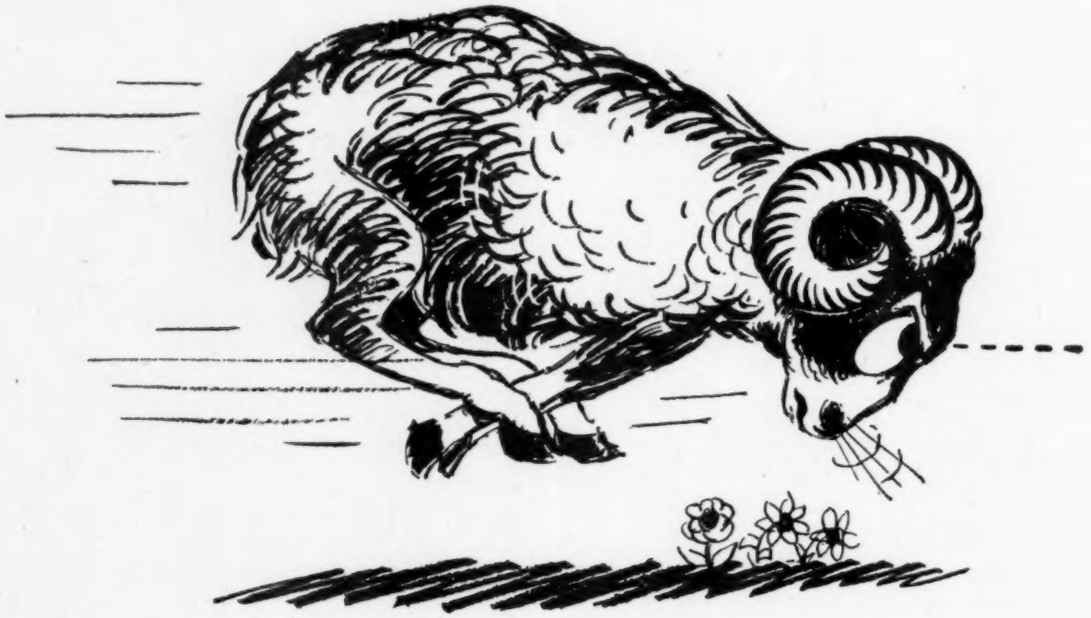

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they have included four text-books on meat inspection or meat hygiene compiled by Professor Schönberg, each of which has become accepted as a standard work ; studies on the bacteriology of spices, a variety of meat products, and milk ; the histological examination of meat products ; studies on suitable disinfectant practice for slaughter-house use; the use of ultraviolet lamps for a similar purpose in shops and factories, and the development of methods for detecting early decomposition in foodstuffs.

In addition, the institute undertakes a great deal of investigational work on behalf of the meat industry, and acts as technical consultant to a large number of meat works. There is thus an abundant supply of material for teaching and research purposes.

It is worth noting here that the opinion of this institute is sought by an increasing number of British scientists engaged in research in food science. Few of the enquiries have a veterinary origin. Further, in keeping with the policy of the rest of the school, an increasing number of foreign students are encouraged to attend, and there is no doubt that in a few years this institute will again be an international study centre for meat hygiene.

As is well known, Professor Schönberg has played a significant part in the modification of German food law, and his experience as a teacher and research worker in meat hygiene is unique.

It is not the purpose of this Report to make detailed comment on British methods of training veterinarians in meat hygiene. Indeed, a glance at the syllabuses published in the R.C.V.S. Calendar renders comment superfluous. However, in both Denmark and Germany experience has clearly shown that the efficient organisation of a meat control service demands much more from its members than is ever provided for the profession by veterinary schools in Great Britain. It was the opinion of many continental veterinarians that the first step towards any future re-organisation of the meat control services in this country must be the provision of more veterinarians competent to undertake the varied responsibilities that this would involve.

B. Organisation

About 25 per cent. of the Danish veterinary profession, and a similar proportion of the German profession, are permanently employed in some branch of food control, either as State employees or as municipal veterinarians. In addition, it is a common practice in both countries to employ veterinary surgeons as part-time meat inspectors, and in Germany, especially, there are many veterinarians employed in the food research institutes, which study a variety of technological problems of interest to the meat or fish industries.

In general, veterinarians are responsible for the hygienic control of all foods of animal origin and although there is considerable variation in administrative detail between the two countries, the veterinarian's place in the over-all scheme for food control can be illustrated in the following way :—

Food Control Personnel

Food Chemists.—Control of all non-animal foodstuffs. Analytical work on animal foodstuffs when falsification or adulteration suspected.

Veterinarians.—Control of all foods of animal origin : Fresh meat, manufactured meats, fish, shellfish, game, poultry, eggs and milk.

Medicals.—Control of food handlers : Investigation of food poisoning, purity of water supplies.

Thus, in contrast to other countries, the perishable foods of animal origin receive special attention, and are subject to a continuity of control by one type of personnel. It is a speciality and a type of control for which the training of veterinarians has been carefully adapted. There is of course close collaboration between the three professional groups concerned in food control. Adequate laboratory facilities are available for the specialised functions of each group.

The important administrative details of veterinary food control as practised in Denmark and Germany are well known in this country (Seidel, 1948), and have already formed the subject of another Report (B.V.A., 1954). This Report, therefore, deals chiefly with those aspects of the subject with which the author was especially concerned, and only brief mention is made of the general organisation.

Abattoirs

At the present time there are about 1,200 privately-owned slaughter-houses in Denmark, situated chiefly in rural districts and owned and managed by local butchers. The standard of construction varies considerably, the vast majority being old and having few advantages over the better type of private slaughter-house to be found in this country. All animals slaughtered on these premises are subject to veterinary examination (*ante-* and *post-mortem*), and careful attention is paid to identification of slaughter animals and marking of their carcases. General supervisory control is exerted by the Danish veterinary service, and over many years now, attempts have been made to improve the general standards of construction of these premises.

Similarly, in the case of the larger public slaughter-houses there is considerable variation in building standards. As one might expect, rather more attention has been directed to effecting improvements in these than has been the case with private premises, and it is, of course, well known that the standard reached in the public slaughter-houses licensed for export, and in the export slaughter-houses *per se*, is a very high one. Probably typical examples of attempts at modernisation of the older type of public slaughter-house are to be found in the Copenhagen city abattoir and in Aarhus, Jutland. Both were originally planned along German lines—separate slaughter halls for each class of animal, with wide roadways, etc.—and have now been converted into the " open hall " type of building. There are, of course, separate slaughter halls for pigs, but these remain unmodernised largely because the annual kill of these animals is low. Lairage facilities are generally poor, but do not, of course, typify the standard reached in export concerns. There are good facilities available for meat inspection—light and airy detention rooms are always provided—and in contrast to the majority of premises in this country chill room accommodation is first class. Disposal of offal from the slaughter-floor receives special attention, and the method used in Copenhagen for getting rid of rumen

contents is particularly good. A separate room is provided for this, adjacent to the slaughter-hall. In Copenhagen, the meat market forms a major part of the abattoir and is excellent for its purpose. Indeed, the greater part of meat sold in the city is "dead meat" sent in from outlying districts and for this reason both chilling space (capable of holding several thousand carcases) and wholesale and retail facilities have received much more attention than most parts of the slaughter-house itself. In Aarhus, the plan is essentially similar, but on a smaller scale.

In both centres one was impressed by the regular attention paid to general slaughter-house hygiene—although many of the facilities were by no means ideal—and the present high standard has only been attained by means of constant supervision on the part of veterinary officers, or lay officials.

The noteworthy features of both these abattoirs are illustrated.

A large amount of German meat inspection literature has been devoted to the proper construction of slaughter-houses, and in many cases there is no doubt that a standard approaching the ideal has been reached. The salient features of the Hamburg abattoir, for example, have already been described (B.V.A., 1954). However, as in Denmark, there are still a number of unsatisfactory premises to be found—one of them in Hanover. It is, of course, by no means fair to form a general opinion after a brief period working in a bomb-damaged city whose abattoir was scheduled for modernisation before the war. The buildings here are generally badly lighted and partially ruined, and standards of hygiene, disposal of inedible offal and chilling accommodation are admitted to be unsatisfactory by all concerned, *i.e.*, they are below those normally regarded as desirable in Germany. The basic plan of the slaughter-house was made in the late 19th-century, and is of the German type which was emulated by so many other countries. The remains of a very sound feature, however, were to be found in the large detention room available to the veterinary officers, and considering the size and state of the abattoir (annual kill about 190,000) meat inspection facilities were remarkably good. There are relatively fewer private slaughter-houses in Germany than in either Denmark or Great Britain.

In both the former countries the majority of public abattoirs have their own laboratory facilities. They are illustrated and described under a separate section.

Slaughtering and Meat Inspection

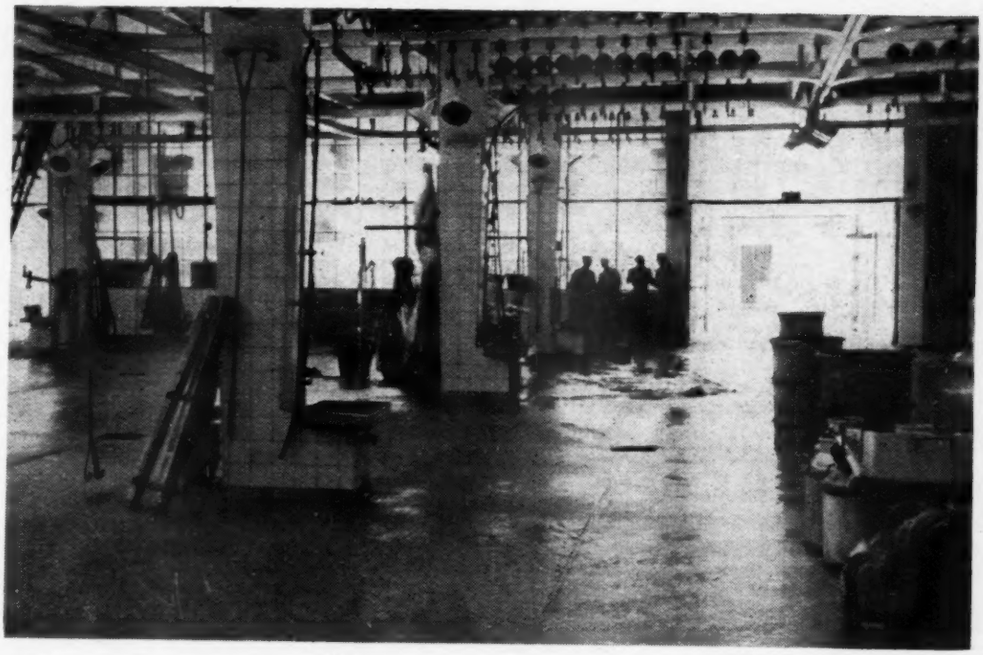
In Denmark there is no law regulating the slaughter of animals and in country districts very many are stunned by means of the pole-axe. Many others (calves) are not stunned. In the large centres, however, stunning by captive-bolt, or electrical methods in the case of pigs, is the general rule. In Copenhagen, for example, a local authority employee stuns all animals mechanically, and with the animal's head secured to a convenient ring in a post—or more frequently, not secured in any way at all. Slaughtermen and butchers are not allowed the use of stunning apparatus—in many ways a sensible practice, unfortunately not widespread. No animals are pithed and apparently no suggestions have been made that it is ever necessary. As will be gathered from the illustrations the type of beef animals coming to slaughter is restricted to cow beef—and much of this is of very poor quality. There are generally no difficulties in handling the animals at slaughter and it is the rule to lead them into the slaughter-hall on a halter. Many veal or older calves are, of course, slaughtered, and probably exceed "cow beef" in numbers.

The chief differences in dressing methods between Denmark and this country are shown in the photographs, but there are a few especially noteworthy features: blood collection, for example, is much more carefully done than is the case in this country, and the type of collecting pan in use is superior to the models available over here. Blood collection drains are found more frequently: the type used in Aarhus for cattle slaughter could hardly be bettered. The net result of both these procedures is to cut down the amount of work necessary for maintaining reasonably clean floor conditions; and in any case much more determined efforts are made in this direction than is usually the case here. In examining the carcase, too, the liver is always left attached until the meat inspector has examined it, and in Copenhagen, adjacent to each carcase is a large wicker basket over which the intestines are draped until the mesenteric lymph nodes have been incised. In Aarhus, large offal collecting barrows are used to hold all offals until after veterinary examination, each barrow being left adjacent to the appropriate carcase. In the later stages of carcase dressing, however, there are no marked differences in practice between Danish methods and our own, and in view of one's preconceived notions of Danish standards of hygiene, it was interesting to hear veterinary inspectors comment on the extreme difficulty of restraining slaughtermen from using wiping cloths! Equally surprisingly, there was similar debate to that in this country on the appropriate methods of chilling carcases—slow cooling versus rapid cooling, and so on—but generally, every attempt seemed to be made to pass carcases through into the pre-cooler as quickly as possible.

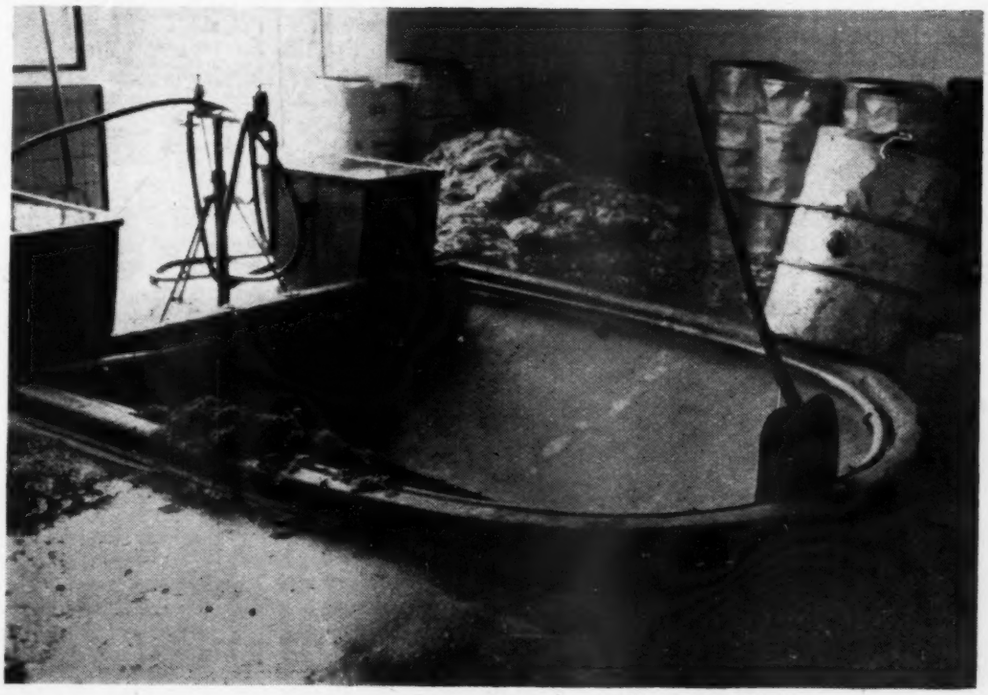
Slaughtering methods in Germany were similar to those referred to here, and in general terms differed (in Hanover) chiefly in the greater emphasis placed upon some standards of hygiene—this in spite of the great difficulties under which the work had to be carried out. Clearly, however, problems of suitable protective clothing for butchers, and general hygienic standards, etc., are universal, and require as much *enforcement* in one country as in another.

A particularly good feature of German technique is the scrupulous care with which offals are related to carcases—metal stands are provided for ox heads and above them rows of hooks for other offal. Each hook and compartment in the stand is numbered, and in the case of pigs, no material may be removed until after trichinoscopic examination.

In both countries there is adequate legislative backing for all meat inspection practice. Texts of German legislation are easily obtainable in this country in most of the text-books on meat inspection, and copies of Danish laws are available in English. The general features of each are probably quite well known: there are, for example, three classes of meat in Denmark—passed unconditionally, conditionally passed (heat



Modernised slaughter hall, Copenhagen. Note head washing apparatus on pillars.



Collection of rumen contents, Copenhagen.

treated), and condemned. In Germany there is an additional class (" minderwertig ") which differs from the " conditionally passed " (" bedingt tauglich ") class in requiring no heat treatment. These two conditional groups were originally evolved to deal with tuberculous carcases, but in Germany there is at present an interesting swing away from this complex system. Recent research has shown that even in cattle affected with *primary* TB. lesions only, tubercle bacilli may be cultured from muscle in about 7 per cent. of cases. In the type of carcase that the Germans would classify as " minderwertig " (chronic organ TB., chronic generalisation), the percentage is considerably higher, and the aim of German meat hygienists is now to have only two classes of TB., *i.e.*, those which are condemned (emaciated carcases principally) and those which are heat treated (all others). Thus the judgment of TB. carcases will be based on bacteriological standards rather than upon the pathological-anatomical basis provided by Nieberle's work.

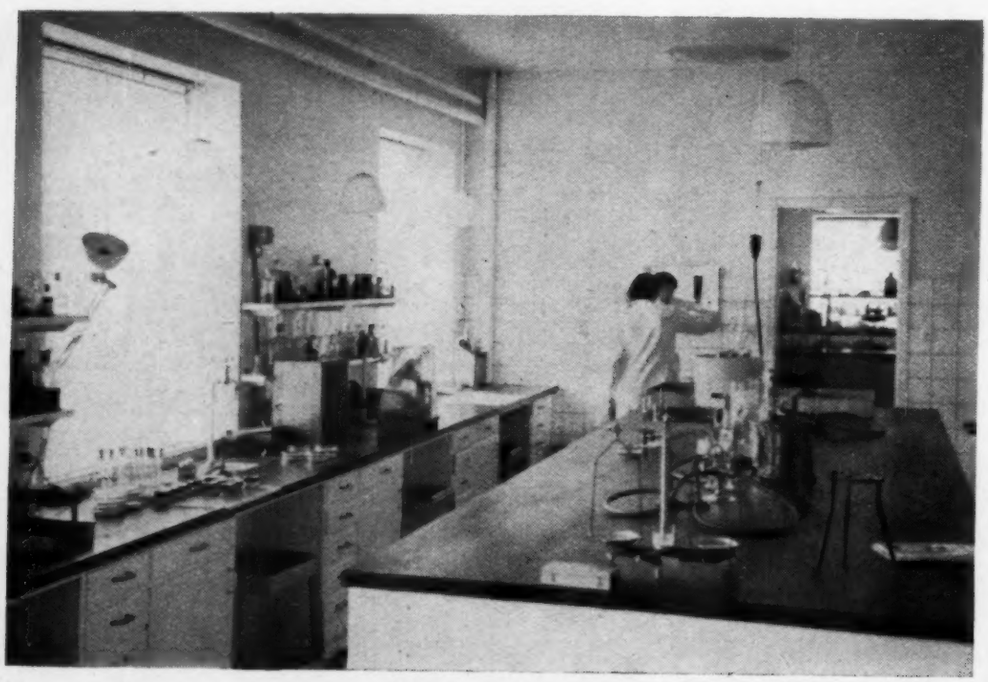
Apart from this, the meat inspection practice of both countries differs from our own chiefly in the wide range of disease conditions for which bacteriological examination of carcases is mandatory.

General Laboratory Facilities

In Denmark, some 30 public slaughter-houses are equipped with their own laboratories, and each year the number increases as more personnel are trained in laboratory methods. There is, of course, great demand for adequately trained men. The type of work that is undertaken is usually of a general diagnostic nature, chiefly bacteriological examination of suspect carcases. Laboratory facilities are usually very good. There are, in addition, municipal laboratories concerned with work of a wider scope than that carried out in the abattoir laboratories. The municipal laboratories have for the most part been in existence for many years and have played a very large part in milk control and mastitis control schemes. They act as diagnostic laboratories for the brucella eradication scheme and generally undertake a great deal of food control and public health work. Many are situated in public slaughter-houses, and incidentally act locally as the abattoir laboratory, *e.g.*, in Copenhagen ; but others, in smaller municipalities, are attached to the houses of the municipal veterinary officers. It is here that so much of their value can be seen, and an enthusiastic veterinary officer (and all seemed to be !) is able to follow his own scientific interests and to make a detached and continuing study of the practical problems in his own district. In one district near Copenhagen, for example, the veterinary officer was, of his own initiative, " directing operations " against staphylococcal contamination of cream products and doing field experiments, under bacteriological control, in association with several local manufacturers.

In all municipal laboratories all types of meat or milk products are regularly examined, and in the smaller ones, especially, the necessary field work—or even meat inspection in private slaughter-houses that is sometimes required from the staff—provides a most useful practical background and ensures close contact with practical and important problems. Four of the larger laboratories in Denmark act as " central " laboratories for the examination of all kinds of foodstuffs. Those at Aarhus, Odense, the State Serum Laboratory in Copenhagen, and the Department of Hygiene and Bacteriology in the Veterinary School, all act in this way. The first two are attached to the public slaughter-house, and are in fact municipal laboratories, and all are empowered to examine specimens (Bacteriological Meat Inspection) from any of the private slaughter-houses in Denmark, or any public slaughter-house without laboratory facilities. The writer had the opportunity of working in two of these, and in the municipal laboratory in Copenhagen. The breadth of public health (Meat and Milk Control) work that these control laboratories undertake is never approached in this country, and is perhaps equivalent to that carried out by our old Provincial Dairy Laboratories, together with the public analysts, public health laboratories and veterinary investigation centres. There is thus ample experience to be gained in them. It is indeed a source of pride to the veterinary profession in Denmark that wherever there is a public health bacteriologist or food technologist to be found the chances are that he will be a veterinarian.

Very many export concerns maintain laboratories on the premises, each of which is under the control of an inspector of the Veterinary Directorate. These laboratories are chiefly concerned with quality control of the finished products and with general supervision of the hygiene of manufacture. That at the J.A.K.A. canning factory in Jutland, for example, is beautifully equipped and the staff comprises a veterinary officer in charge, several technicians, and a graduate in domestic science as food technologist. This factory, and the many like it in Denmark, are supplied with raw material from a large number of private slaughter-houses and bacon factories. The laboratory and supervisory work involved necessarily requires training in food technology and in special laboratory techniques.



Aarhus Municipal Laboratory: one of the four general laboratories.

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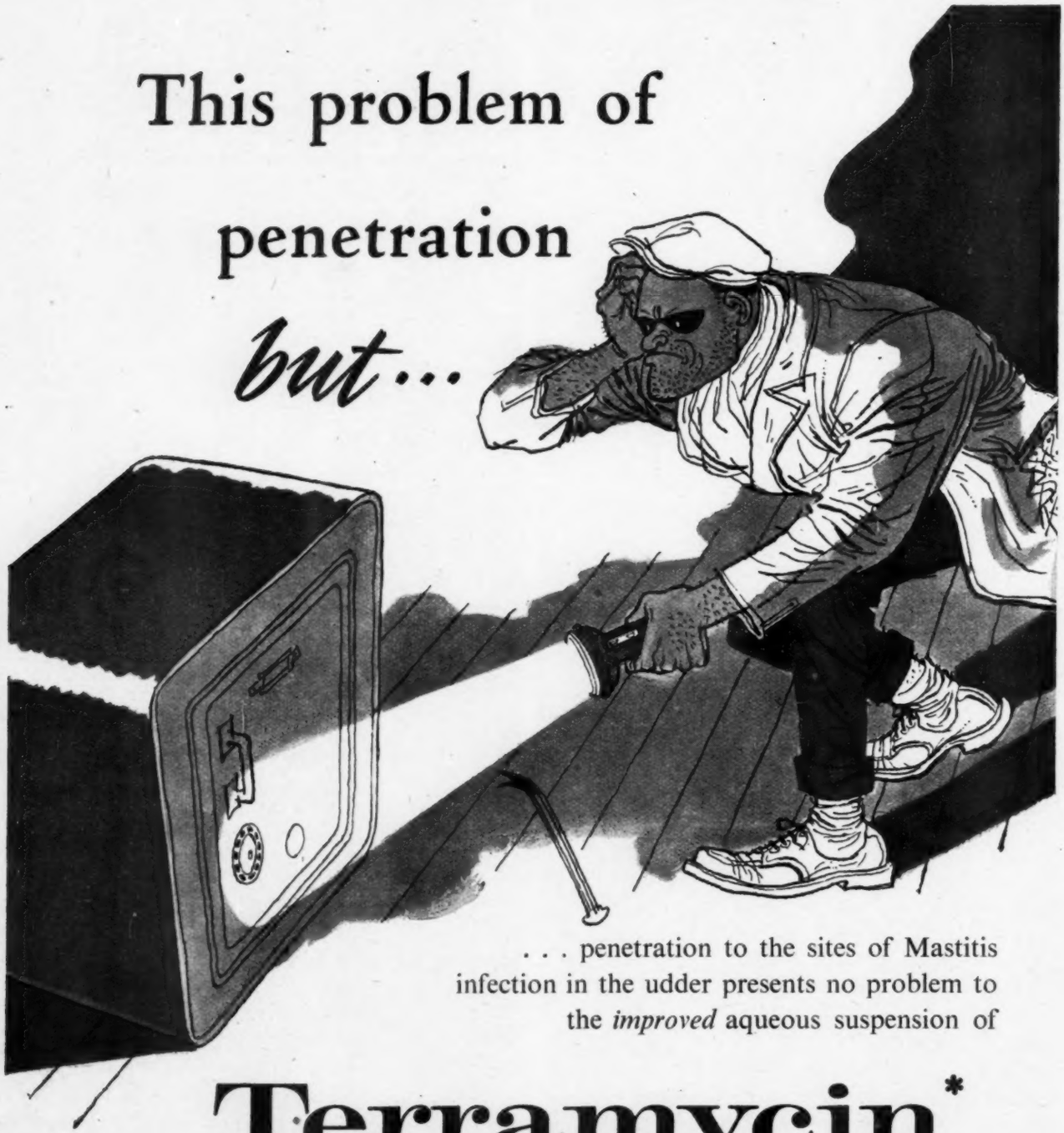

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The organisation of laboratory services in food hygiene in Germany is rather simpler than is the case in Denmark—but certainly no less effective. All larger public slaughter-houses are adequately equipped with the proper facilities, and their work is chiefly concerned with " on the spot " examinations of detained carcases. Bacteriological examinations of certain classes of diseased animal have of course been required in Germany for many years. There are, in addition, central veterinary laboratories in each " Land " which receive specimens for meat inspection purposes and carry out the usual work of a veterinary diagnostic centre. Laboratory control of manufactured meat products is shared between these central laboratories and the many other institutes of meat hygiene or food science scattered throughout the country. Some of these latter form an integral part of the veterinary schools, as is the case, for example, in Hanover.

Some reference must be made here to the " Trichinoscopy Departments " attached to all the public slaughterhouses in Germany. All pigs are required to be examined for *Trichinella* before release, and the amount of labour involved in this work is enormous. In Hanover abattoir, for example, a medium-sized centre with a small whole-time staff of veterinary meat inspectors, it is necessary to provide 12 trichinoscopes and a staff of 15 whose main occupation is a routine examination of pig samples. No figures were made available to the writer as to the cost or efficacy of the system.

In both countries a good deal of applied or fundamental research on food science is undertaken by suitably trained veterinarians, in either State or privately endowed laboratories or commercial undertakings. The Meat Research Centre at Roskilde in Denmark is, perhaps, the latest example, and both in equipment and staffing illustrates the approach made to economic problems affecting the meat industry. General descriptions of the premises have already been made in the farming and public Press in this country, and indeed the suggestion has been made that some effort should be made in our part to provide similar research facilities in Great Britain.

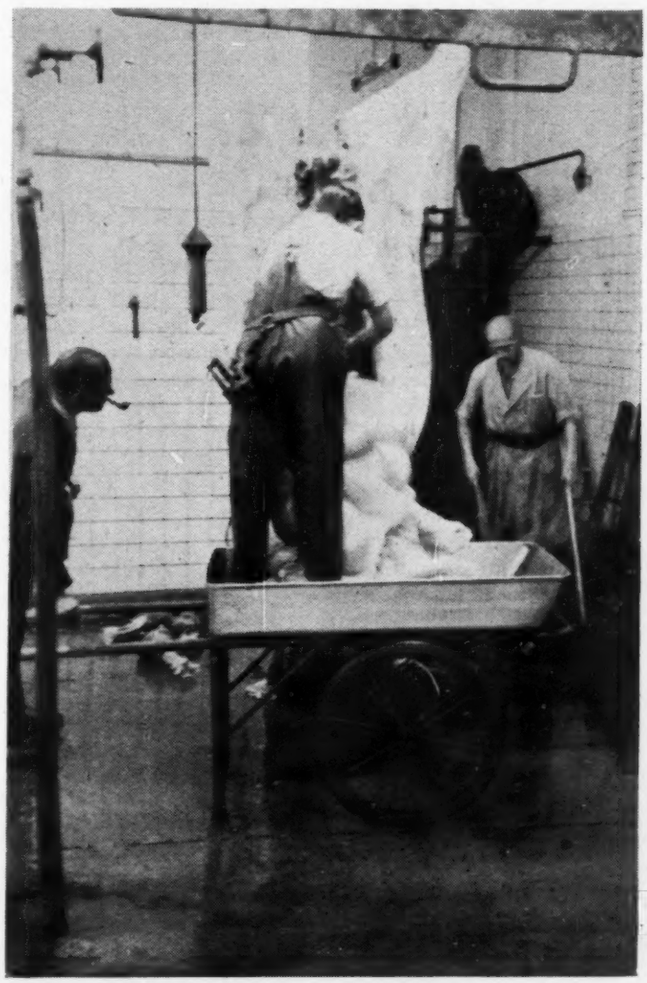
The Centre is about 12 months old and was built out of funds provided by many of the larger export bacon factories. It consists of a large number of small laboratories for individual research problems and a small manufacturing plant suitable for experimental studies of processing techniques. There is ample refrigeration space available, and generally every modern facility for research into problems of food science, *i.e.*, chemical, biochemical and bacteriology sections and a mobile laboratory for investigations of problems in the field.

The deputy head of the laboratory, Mr. Hans Rieman, is a veterinarian and chief veterinary officer, and there is so far one other veterinarian on the staff. A full research programme is not yet in operation and work has been limited (for staffing reasons) chiefly to applied problems in manufacturing technique. The veterinary staff are engaged with a number of these, but include studies of electroplexy in pigs and the development of better methods of electrical stunning. (In this connection I was informed that the use of the Elther apparatus was not so satisfactory as originally claimed.) So far as one could tell the chief interest of the laboratory seemed to centre round the complex of *ante-mortem* handling of pigs in relation to the *post-mortem* changes in their tissues, and the subsequent quality of hams and bacon. The veterinary staff were well known amongst food scientists in this country, and it was difficult to avoid the feeling that the British veterinary profession stood to lose a great deal of its scientific value by not participating—and initiating—research projects of a nature similar to those about to be carried out at Roskilde, and to those carried out for many years at the Low Temperature Research Station in Cambridge.

No laboratories similar to this were visited in Germany, although there are several institutes for food research which are controlled exclusively by veterinarians and in which similar problems are studied. In the Hanover school, for example, it is intended to make use of the experimental slaughter-hall for a variety of research projects on slaughtering practice and on the handling of animals immediately prior to slaughter.

Freibank Plant

In Germany, all meat classed as " bedingt tauglich " is required to be adequately heat treated before sale, and is sold only in special shops, under carefully



Collection and removal of intestines, Aarhus. Intestines inspected whilst in tray.

regulated conditions and at a lower price (about half) than normal sound meat. Obviously there are serious practical difficulties in maintaining such a system and in order to overcome many of these, three or four "Central Freibank" factories have been built, which receive material from a wide area. That in Hildesheim, for example, serves the whole of Lower Saxony, and it is intended to build others serving different parts of the country as soon as economic circumstances permit. The factories are owned and operated by private firms, but the chief executive position in all cases is held by a veterinarian. He is responsible for all processing techniques, the supervision of hygienic standards, and for running a small "quality control" and bacteriological laboratory attached to each of the premises. He may, if desirable, stop all processing, and virtually close the factory. As the business is a highly profitable one it is not surprising that little difficulty is experienced in maintaining the high standards that are desirable.

The premises are so designed that workers enter at one end ("clean end"), change outer clothing and pass through a wash room into the main building. In the reverse process no one is allowed into the "clean end" without suitable washing, or disinfection when necessary.

Very many different types of carcase are received in these factories; many of them would be totally condemned in this country and are too numerous to indicate here. There are facilities, too, for the slaughter of live pigs (swine fever cases for example) in a slaughter-hall surrounded by a gallery from which all slaughtering activities can be seen. All material is, of course, boned out, cut into small pieces, cooked under pressure, and processed into a variety of canned goods or different types of sausage. There are several smoke chambers, the temperature of which is carefully regulated according to the type of material under treatment. All material in the finished state is carefully labelled, and marked with the Freibank green stripe. Although the quality is extremely good, and routine bacteriological examinations (keeping quality and pathogens) are carried out, there is considerable sales resistance to this type of product. It is, however, considered to be an economically sound system.

The whole impression gained from visits to establishments such as these and from discussions with the senior staffs, was of the awareness of veterinarians of the scientific or practical problems relating to food control or public health.

THE BACTERIOLOGICAL EXAMINATION OF FRESH MEAT

"Bacteriological Meat Inspection"

The bacteriological examination of animals suspected of infectious disease has been accepted for years as an integral part of the meat inspection services in many European countries. Originating from Germany, where it was first adopted in an attempt to reduce the number of outbreaks of "meat poisoning," it found a widening application as knowledge of the causes of food poisoning in man advanced, and as it became clear that both public health and economic considerations demanded a close revision of existing meat inspection law. It has never been adopted in Great Britain. Possibly economic and geographical factors are chief among the reasons for the failure of public health authorities in this country to rationalise the law relating to meat inspection; but there is no doubt that the differences in the epidemiology of food poisoning between this country and, for example, Germany, the early awakening of the medical profession to their public health responsibilities, and the failure for many reasons of the veterinary profession to take advantage of theirs, have all had an important influence. Some of these factors at least may be modified in the near future, and it is appropriate to review the theoretical background and techniques of "bacteriological meat inspection," and to consider what contribution they make in safeguarding public health and securing the economic utilisation of fresh meat.

Theoretical Background

The use of bacteriological methods in meat inspection as a diagnostic link between *ante-* and *post-mortem* examination, is based upon the theory that the internal organs, muscles, and lymphatic tissues of healthy animals in a physiologically normal condition, are sterile. If bacteria can be cultivated from these tissues they must only be present as a result of specific disease or physiological disturbance. The types of bacteria that are found, and their distribution throughout the tissues, are obviously factors to be considered before deciding the fate of a carcase; further, it is necessary to know the various means by which bacteria gain access to animal tissues before their significance can be understood.

Ante-mortem Infection

Live animals carry micro-organisms on hair and skin and in the cavities of organs communicating with the external surfaces. Normally, all tissues which do not communicate with external environments are sterile. There are no bacteria present in the muscle, bone marrow, lymph nodes, body cavities, lungs, liver or spleen, provided that the animals are healthy and in a physiologically normal state.

In the diseased animal specific pathogenic bacteria may become widely distributed in the tissues as the result of persisting bacteraemia. Signs of clinical illness are usually apparent and *post-mortem* examination usually reveals evidence of gross pathological change. Such carcases are regularly condemned. However, it is by no means the invariable rule that the presence of an infection can be detected by evidence of gross pathological change in tissues, and in the absence of both *ante-mortem* and bacteriological examinations infected carcases may be released. There is thus a close link between clinical examination of the meat animal before slaughter and the possible need for bacteriological examination of its carcase; *post-mortem* examination alone may never indicate the need for bacteriological studies.

Further, as the result of physiological disturbance—fatigue or over-feeding, for example—or as the result of severe injury, or the presence of intercurrent disease of non-bacterial origin, it is known that transient bacteraemias occur and normally sterile tissues become infected. The source of the infection may be the intestinal tract or any other infected focus. Such

bacteraemias must occur frequently as the result of minor insult to the host and are of no significance in the animal whose defence mechanisms against bacterial invasion function adequately. In the severely ill, injured or physiologically disturbed animal, however, it is believed that bacterial clearing mechanisms fail to function adequately and the transient presence of intestinal bacteria in muscle, lymph nodes, bone marrow, etc., is thus converted to a more permanent state.

Bacteria found in the tissues under these circumstances may be non-pathogenic types similar to the natural flora of the intestine ; alternatively, specific pathogens may be present should the host animal be a carrier. It is important, therefore, to recognise the types of disease or physiological upset in which experience has frequently shown the tissues to be infected. These are referred to in a later section, and it should be noted that many of them are disregarded in Memo. 3/Meat.

Post-mortem Infection

Whatever the bacteriological status of an animal's tissues before slaughter, slaughtering operations rapidly alter it. Sticking and bleeding afford the opportunity for bacteria from the skin or knife to invade the sticking wound and circulate in the blood stream. The work of L. B. Jensen and his associates has shown that marker organisms originating from the sticking knife may be recovered regularly from muscle and bone marrow when carcases are examined immediately after killing. It is common experience, too, that the blood remaining in the heart of a slaughtered animal is contaminated with bacteria.

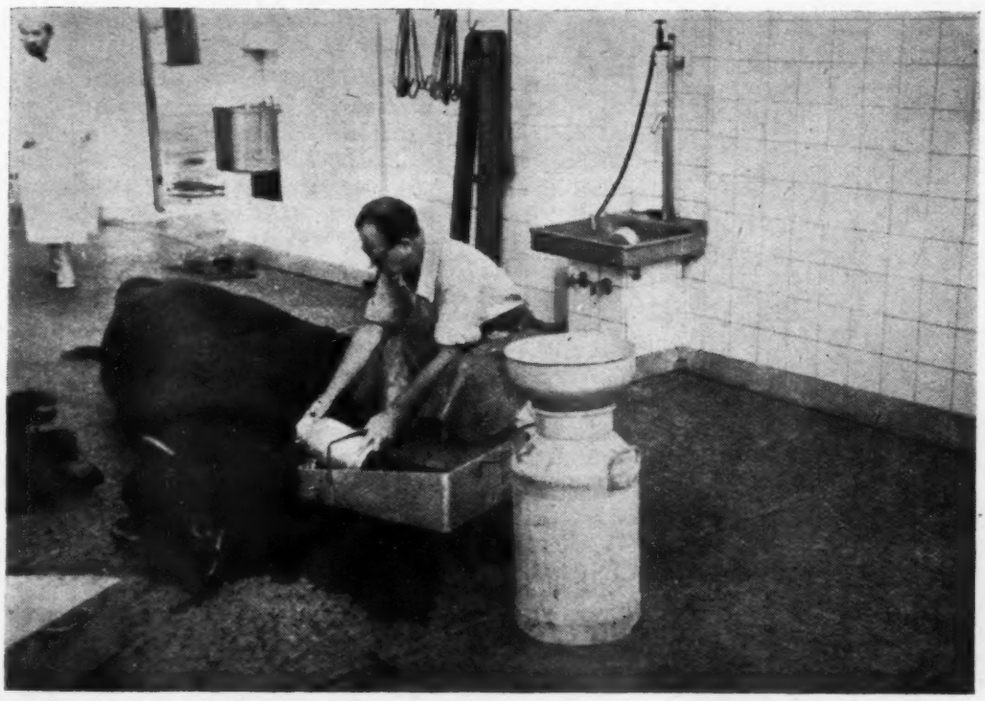
During the dressing of the carcase it is inevitable that the superficial tissues will be contaminated with bacteria originating from the hide, alimentary tract or slaughtering implements. In all cases, however, the contamination is restricted to superficial areas, and provided that the meat is not stored in conditions highly favourable to bacterial growth, the deeper tissues will remain sterile. Thus, if bacteria are present in the deeper parts of an organ or sample of muscle which has been removed aseptically, they can only be present as a result of invasion of those tissues during the life of the animal or as a result of invasion via the sticking wound. In practice the number of organisms present as a result of sticking wound infection is found to be small, and can almost be neglected from the point of view of bacteriological meat inspection.

Experience has shown that it is difficult to prevent *post-mortem* invasion of bacteria into the pelvis of the kidney and the kidney substance. Similarly, the liver may quite frequently be found to contain small numbers of bacteria as a result of either *post-mortem* invasion or infection of the tissues during the life of the animal. If bacteria are found in these sites, it is not necessarily an indication of the *intra-vitam* bacteriological status of either the tissue or the carcase as a whole. The finding of bacteria in these organs can only be regarded as significant when the bacteria belong to recognised pathogenic species.

The Types of Bacteria Found in Bacteriological Meat Inspection

Bacteria found in bacteriological meat inspection may be either specific pathogenic bacteria or a mixed flora of non-specific non-pathogenic bacteria resembling the natural intestinal flora. The presence of specific pathogens is easily explained as resulting from a bacteraemia at the time of slaughter, and a variety of species may be encountered : *E. rhusiopathiae*, *E. monocytogenes*, *C. pyogenes*, haemolytic streptococci, haemolytic staphylococo, *Pasteurella*, or *Salmonella* spp., and *Escherichia coli* in newly born animals, are all of significance in bacteriological meat inspection.

The term non-specific or non-pathogenic bacteria refers to the presence of viridans streptococci, entero-



Blood collection by hand, Copenhagen.

cocci, non-haemolytic staphylococci, Anthracoids, *Clostridia* and *Escherichia coli* in adult animals. Provided that technical methods for their isolation are satisfactory, the presence of these organisms in organs (other than liver or kidney), lymph nodes or muscle can only result from invasion from the alimentary tract or some other naturally infected cavity in a diseased or physiologically abnormal animal, *i.e.*, the animal with "lowered resistance."

Interpretation of Results

There is no uniform agreement as to the manner in which the results of a bacteriological examination of meat should be interpreted, and the different countries in which the work is practised adopt a variety of technical procedures and criteria of interpretation. It is generally agreed that sterile samples present no problem, and provided the carcase is otherwise sound the absence of bacteria from the tissue samples indicates a favourable judgment. It should be emphasised that the final judgment of meat must always be the responsibility of the meat inspector, and organoleptically unsound but sterile material should be unhesitatingly condemned. That procedure is adopted in all countries. Further, when specific, pathogenic bacteria are found in one or more samples it is the general practice to condemn the entire carcase and offal. There is an exception to this rule in Germany, where carcases are "passed for sterilisation" (bedingt tauglich) if *Salmonella* are found restricted to the liver, gall bladder, spleen or kidney. The infected organ is, of course, condemned.

The finding of only non-specific, non-pathogenic bacteria presents a more difficult problem in interpretation, as it does not indicate that the animal was affected by a generalised infectious disease, nor are the majority of species encountered generally accepted as harmful to man. However, their presence indicates some abnormal condition during the life of the animal.

It is known that many of the species included in the non-specific group are associated with meat spoilage, and severely reduce the keeping quality of meat. On these grounds alone it may be admissible to condemn the carcase and offal when large numbers of non-specific bacteria are present in the tissue samples. There is the possibility, too, that if intestinal organisms are present in the tissues, there may also be small numbers of *Salmonella*, or *Clostridia* which remain undetected by the cultural techniques in use. Either may give rise to unexpected outbreaks of food poisoning, and although the chances of occurrence may be slight, they cannot be ignored.

The finding of small numbers of non-specific bacteria is generally accepted as of lesser significance. It is not surprising that there should exist different interpretations of the significance of these organisms—whatever their number or distribution throughout the tissues—between the several countries practising bacteriological meat inspection.

In Germany, the responsibility for judging the carcase under these circumstances is entirely that of the meat inspector. His is the final decision, and he may choose to pass the carcase, condemn it, release it for heat treatment (bedingt tauglich), or release it as a carcase of lowered value only (minderwertig). In Denmark "high-grade non-specific infection" always indicates total condemnation, whereas "low-grade non-specific infection" is no hindrance to passing the carcase. The difference between the two is arbitrarily selected as being the presence of non-specific organisms in two or more tissue samples, or in one sample only, excluding the liver. There is wide discussion of the logic of this distinction, and indeed of the desirability of condemning carcases in which a high-grade non-specific infection is found in the tissue samples.

Should bacteriological meat inspection become part of British meat inspection practice, it may be wiser in the absence of a "conditionally passed" class of meat, to follow the Danish lead. However, it must be emphasised again that no organoleptically unsound carcase should be released for human food, whatever the bacterial flora of its deeper tissues.

Practical Applications

It is fundamental to the practice of bacteriological meat inspection to recognise the technical error of applying the results of a bacteriological examination to carcases in which gross pathological findings already indicate total condemnation. Moreover, on receipt of negative laboratory results, the meat inspector must carefully re-judge the carcase according to standard *post-mortem* technique before releasing it for human food.

The cases which are selected for examination are restricted to those in which tissues frequently contain bacteria as a result of invasion from the intestine or infected foci, and which on the basis of *post-mortem* findings alone would be released for food or have only local portions condemned. On these grounds it is obvious that a wide range of disease, accident, or physiological upset can be selected for bacteriological study, and precisely what is selected varies from country to country.

In Germany, new legislation is shortly to be introduced to include all emergency slaughtered animals, and all animals showing signs of illness during life. The meat inspector already possesses wide discretionary powers to require a bacteriological examination whenever he considers it necessary, and it is mandatory when evisceration of the carcase has been delayed or when one or more organs is not presented for *post-mortem* examination. There is much to be said in favour of discretionary powers where meat inspection is carried out by thoroughly trained veterinarians. The types of carcase most frequently examined are similar to those in Denmark, where the Meat Inspection Act of 1949 details the conditions to which bacteriological studies shall be applied. These are given below in full, and are universally applicable in countries in which the public Health authorities have power to detain carcases pending the results of bacteriological (or any) analysis. There are, of course, no such powers in England and Wales.

The list of conditions is as follows :—

1. Emergency slaughter of sick animals.
2. Delayed evisceration.
3. Chronic pericarditis.
4. Traumatic pericarditis.
5. Verrucose endocarditis.
6. Chronic catarrhal or purulent bronchopneumonia.

7. Sub-acute broncho-pneumonia in calves or young cattle.
8. Acute catarrhal enteritis in adults.
9. Localised fibrinous peritonitis.
10. Chronic metritis, pyometra, or the presence of a macerated foetus.
11. Retained placenta.
12. Incomplete parturition.
13. Prolapse, torsion or rupture of the uterus.
14. Chronic purulent mastitis.
15. Chronic supurative osteomyelitis.
16. Infective arthritis affecting one joint only.
17. Localised tenosynovitis in adults.
18. Infected wounds or cellulitis.
19. Severe burns.
20. At re-inspection of market meat if the inspector considers it necessary.

In addition, a meat inspector may require a bacteriologist's report in any other circumstances in which he considers it desirable.

In all the above cases, where tissue samples are reported as sterile, the meat inspector is empowered to release the carcase and offal for food after making a further complete examination according to standard *post-mortem* technique. Any variant of these conditions (*e.g.*, acute septic pericarditis, acute septic peritonitis, etc.), or any other disease condition (*e.g.*, the many acute specific diseases in which *post-mortem* lesions are obvious), receive judgments which are almost universally applied—*i.e.*, total condemnation. Indeed, Danish meat inspection *technique* differs in principle from British practice only in the attention paid to bacteriological examination of certain types of carcase. The view is taken that whilst it is always the responsibility of the meat inspector to safeguard human health, and to remove all doubt as to the safety of meat allowed to pass into the hands of the public, it is his further responsibility to do so with the minimum wastage of sound meat. Only with the aid of a bacteriological laboratory can that be done with certainty.

It remains to consider the practical justification for this view and the possibility of applying a similar rationale to British methods of meat inspection.

Justification for Bacteriological Meat Inspection

It has already been suggested that there are strong theoretical reasons for adopting the bacteriological examination of certain types of carcase as part of the routine of meat inspection, viz., the certain identification of dangerous or unsound meat which in the absence of laboratory facilities would remain undetected. Further, carcases thought to be potentially dangerous may prove to be harmless bacteriologically and provided they are aesthetically acceptable, may be safely released for food. The justification is thus based on the grounds of public health interest and national economy, and the only possible way of studying either is by means of reports from countries which have practised the techniques over many years.

In North Germany during the years 1937–49, between 1·5 and 11 per cent. of all samples from cattle (all ages) submitted to Schleswig-Holstein laboratories for bacteriological meat inspection were found to be infected with *S. gärtner*. In calves alone the annual percentage of positive samples ranged from 3·7 to 21·6 (Von Ostertag & Schönberg, 1955). Salmonellosis is more widespread among domestic animals in Northern Germany than in other parts of the country, but in all parts the results of bacteriological meat inspection have indicated a higher incidence than is believed to exist in Great Britain. As a result of the steady application of the results of bacteriological meat inspection, the incidence of meat poisoning in pre-war Germany was significantly reduced. For example, in 1928, there were 30 outbreaks of meat poisoning ("echte Fleischvergiftungen") involving 1,842 people, of whom 18 died. In 1927, there were 20 outbreaks, involving 1,157 people, of whom seven died. In 1937, however, there were only two outbreaks of meat poisoning involving 278 people. There were no deaths. Each of the latter outbreaks resulted from the failure of meat inspectors to respect the meat inspection regulations. Unfortunately this drop in the incidence of meat poisoning has not been maintained in recent years—a result of the administrative upset inevitably associated with wartime conditions (Schönberg, 1951).

As is the case in this country, the majority of outbreaks of food poisoning in Germany continue to be due to *post-mortem* contamination of food products, but great credit is due to the German veterinary services for the part they played in reducing the earlier and higher incidence of "meat poisoning" due to the consumption of raw or partially cooked flesh from sick or emergency slaughtered animals. Moreover it was done by rational and economically sound methods rather than by the wholesale condemnation of every suspect carcase.

Further, the knowledge gained by examination of suspect material has contributed significantly to the better understanding of the epidemiology of salmonellosis in meat animals.

The justification for adopting and maintaining a close bacteriological control in meat inspection practice in Germany is thus firmly based on public health grounds, and the significance of the system in the control of animal health is by no means small.

The results obtained from the study of Danish reports, however, are less clear. It appears that *Salmonella* infections in meat animals in Denmark are extremely uncommon, and in one series of figures compiled by the Aarhus Public Health Laboratory for the years 1952–5, *Salmonella spp.* were isolated on only two occasions from a total of 6,924 samples (Lange, 1955). Nation-wide statistics for the years 1951–3 showed that of some 10,000 bacteriological meat examinations, approximately 80 per cent. of samples were sterile, 4 per cent. were classified as high-grade non-specific infections, and about 10 per cent. as low-grade non-specific infections. The figures are given below (Jepsen, 1954).

March 1951 to March 1953

Central Laboratories

Total number of samples ...	4,852	
Sterile	79·18	per cent.
Low-grade non-specific infection	10·53	„
High „ „ „	4·43	„
Specific infection	5·85	„

Local Laboratories

Total number of samples ...	4,974	
Sterile	74·85	per cent.
Low-grade non-specific infection	11·82	„
High- „ „ „	4·48	„
Specific infection	8·84	„

Statistical analyses for the years 1953–5 were not complete at the time the author was in Denmark, but the general tendency seemed to be for a rather higher proportion of specific and high-grade non-specific infection. There were interesting differences between the results of the four central laboratories which carry out the bulk of the work. In Aarhus, for example, about 17 per cent. of samples were classified as specific infection, and about 5 per cent. as high-grade non-specific infection. In the State Serum Laboratory the comparative figures were about 1 and 16 per cent. These differences may be accounted for by differing methods of interpretation between laboratories, or by a host of technical reasons which are being actively studied in Denmark.

Statistics compiled by Dyrlaege Merete Lange, of the Aarhus Laboratory, are of special interest in evaluating the work of bacteriological meat inspection (Lange, 1955). They give details of the different types of infection found in samples taken from animals suffering from all the common diseases for which bacteriological meat inspection is mandatory. Extracts from these tables are given in Tables I and II.

Two points are of importance in considering their significance and possible relationship to British conditions. First, the clear division of these types of diseased carcases into those which may justifiably be released and those which are condemned, is based on the *potential* hazards to public health, and the *potentially* reduced keeping quality of meat infected with animal pathogens or a variety of bacteria originating from the intestinal tract. From the tables, some may consider either supposition so tenuous that the expense and labour of a routine bacteriological service for meat inspectors as in Denmark is scarcely worth while. It is hardly likely, for example, that all the strains of haemolytic staphylococci would be enterotoxinogenic, or that the ingestion of *C. pyogenes*, *Beta* haemolytic streptococci or *E. rhusiopathiae* frequently cause human illness. By definition, " specific infection " does not necessarily indicate infection of muscle. Again, the very low incidence of *Salmonella spp.* (not included in the tables) found at bacteriological meat inspection lends support to these criticisms, and it is only fair to record that at least some Danish opinion is highly critical of the criteria of judgment that are applied. On the other hand, there is no certainty about any of these points. In the absence of fairly wide-scale bacteriological investigations as practised in Denmark, it is difficult to see how there ever could be, and a great deal of credit is due to the Danish scheme for stimulating awareness of the need for an absolute standard of safety and keeping quality for fresh meat. One can hardly criticise the principle on which the work is based, although views as to its economic justification are bound to vary according to one's conception of hygiene.

Secondly, it must be remembered that it is impossible to compare these results with the judgments that would be applied to the same diseased conditions according to English meat inspection practice, *i.e.*, in the absence of bacteriological investigation. It is no more true to say that in this country all carcases affected with these conditions would be condemned than it is to say that the majority would be released. There is no uniform standard of meat inspection in this country on which a comparison may be based. *In order to evaluate the worth of some system of bacteriological meat inspection—along the lines practised in Denmark or not—it is essential to adopt a system for an experimental period.*

It may well be found that the incidence of *Salmonella* infections in meat animals is higher than we think, or that the number of carcases affected with the type of disease referred to here forms a greater potential hazard to public health than we know. It may prove to be the case that under the present system, a great wastage of sound meat has occurred. There can be no *certainty* until the experiment has been made, and neither the state of the public health nor the economic stability of the country are so secure as to render the experiment unnecessary.

Acknowledgments.—The information above is based on a Report on the *Application of Bacteriological and Biochemical Tests in the Hygienic Judgment of Meat and Meat Products* by Professor A. Jepsen, and distributed by the World Health Organisation. The statistical tables are extracted from those prepared by Dyrlaege Merete Lange and presented by her to a meeting of Danish veterinary hygienists in Fredericia in April, 1955. The author wishes to express his thanks to the many Danish and German colleagues who freely provided access to their own material, and with whom discussions on bacteriological meat inspection proved so stimulating. Neither the facts presented here nor the opinions expressed are their responsibility.

THE ORGANISATION OF A MEAT CONTROL LABORATORY

1. Introduction

A great deal of discussion has centred round the need in this country for the provision of suitable laboratory facilities in each of the larger public abattoirs. Veterinary and public health authorities alike are agreed that such a step would fulfil a long awaited need, and envisage the development of these laboratories along the lines followed in most continental countries ; that is, as general diagnostic laboratories, and, most important, as centres for the bacteriological examination of fresh meat. It is claimed, too, that by the provision of laboratory confirmation of diagnoses, the meat inspectorate would be able to supply much more statistical evidence on the incidence of animal disease than is the case at present, and thus directly play a part in its control. This last will probably be difficult to achieve in practice until further experimental work has systematised many of the disease complexes that are known to exist, and thus for many years to come the chief concern of an abattoir laboratory is likely to remain more closely associated with meat inspection and public health rather than with animal disease control *per se*.

The practice of more efficient methods of meat inspection however—with or without laboratory control—forms but one link in the whole chain of control over

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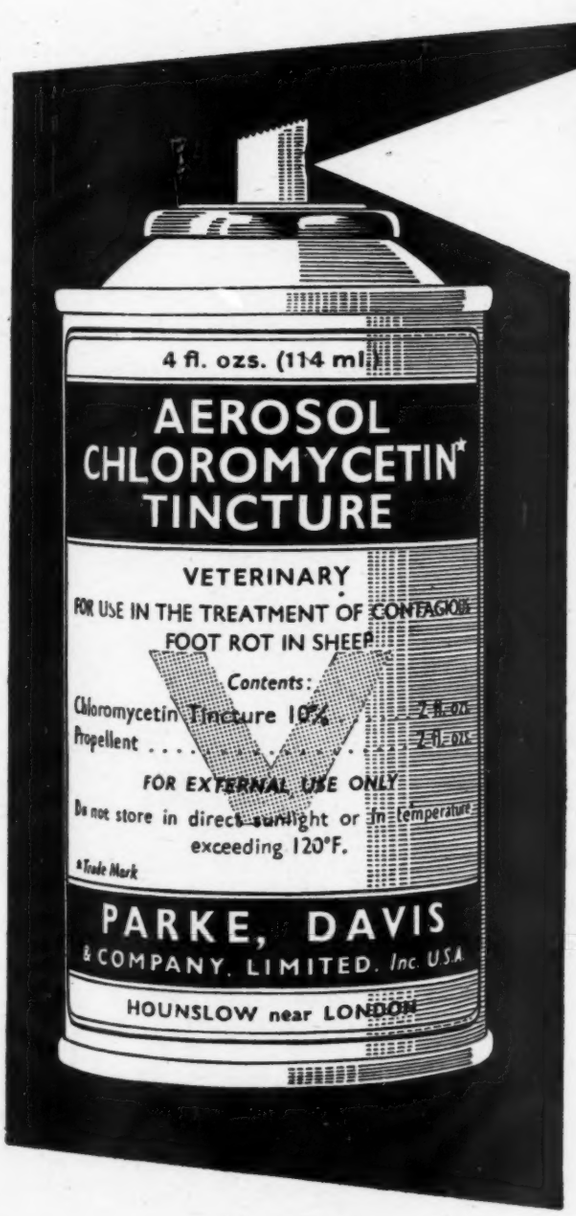

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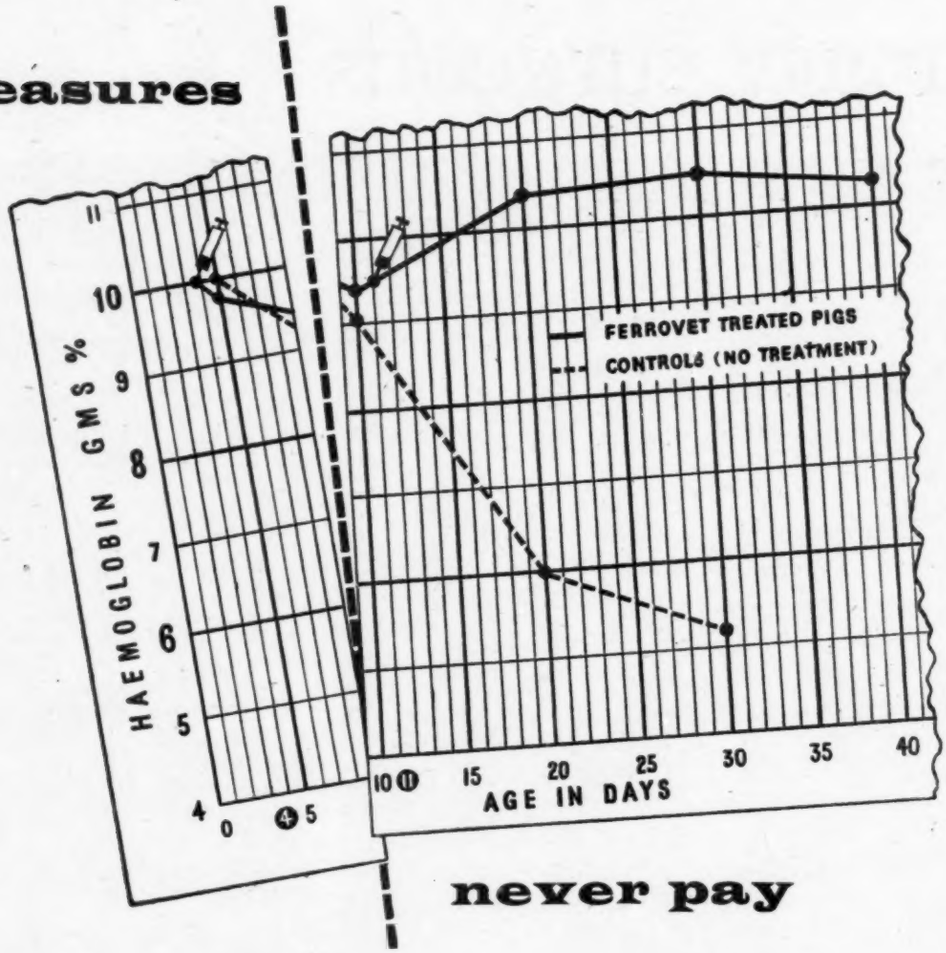

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TABLE I
BACTERIOLOGICAL MEAT INSPECTION OF CATTLE

Inspector's classification	Number examined	Number condemned	Per cent. condemned	Condemned carcases: Per cent. specific infection	Per cent. high-grade N.S. infection	Specific infection: Total	Haemolytic staphylococci	Haemolytic streptococci	*C. pyogenes*	Mixed infection
Casualty										
Fever	81	9	11	44	56	4	25%	25%	50%	0
Diverse reasons ...	618	85	14	56	44	48	25%	21%	54%	0
Dystocia	741	73	10	40	60	29	17%	24%	52%	7%
Post-partum paralysis	240	53	22	66	34	35	20%	9%	71%	0
Pericarditis	41	14	34	86	14	12	0	0	100%	0
Endocarditis	10	6	60	83	17	5	0	0	100%	0
Broncho-pneumonia ...	98	11	11	73	27	8	0	12·5%	87·5%	0
Acute gastroenteritis ...	19	1	5	0	100	0	0	0	0	0
" Other " gastroenteritis	36	8	22	25	75	2	0	50%	0	50%
Local peritonitis ...	114	18	16	89	11	16	6%	0	94%	0
Nephritis	12	3	25	100	0	3	0	0	100%	0
Metritis, pyometra ...	141	20	14	75	25	15	7	7	80%	7%
Retained placenta ...	132	17	13	76	24	13	15%	31%	54%	0
Mastitis without complications	224	48	21	83	17	40	7·5%	7·5%	77·5%	7·5%
Mastitis with complications	175	33	19	94	6	31	7%	19%	71%	3%
Osteomyelitis	4	1	25	100	0	1	0	0	100%	0
Fractures	70	12	17	67	33	8	12·5%	0	87·5%	0
Arthritis, tendovaginitis	295	68	23	82	18	56	7%	4%	88%	2%
Wounds, cellulitis ...	61	12	20	75	25	9	0	0	100%	0
Skin abscesses	43	11	26	91	9	10	10%	10%	80%	0
Other „	87	12	14	83	17	10	10%	20%	70%	0
Burns	5	0	0	0	0	0	0	0	0	0

TABLE II
BACTERIOLOGICAL MEAT INSPECTION OF PIGS

Inspector's classification	Number examined	Number condemned	Per cent. condemned	Condemned carcases: Per cent. specific infection	Per cent. high-grade N.S. infection	Specific infection: Total	Haemolytic staphylococci	Haemolytic streptococci	*C. pyogenes*	*E. rhusiopathiae*	Mixed infection
Casualty											
Fever	108	13	12	85	15	11	9%	36%	27%	27%	0
Diverse reasons ...	248	50	20	72	28	36	14%	67%	17%	3%	0
Dystocia	572	82	14	61	39	50	12%	80%	4%	4%	0
Pericarditis	37	7	19	57	43	4	0	50%	25%	0	25%
Endocarditis	97	82	85	95	5	78	1%	13%	0	86%	0
Broncho-pneumonia ...	102	10	10	60	40	6	17%	17%	67%	0	0
Acute gastroenteritis ...	61	13	21	62	38	8	12·5%	75%	0	0	12·5%
" Other " gastroenteritis	202	28	14	86	14	24	12·5%	87·5%	0	0	0
Local peritonitis ...	83	10	12	80	20	8	12·5%	50%	37·5%	0	0
Nephritis and recent kidney infarctions ...	34	5	15	60	20	3	67%	0	0	33%	0
Metritis, pyometra and retained placenta ...	230	27	12	81·5	18·5	22	23%	64%	9%	0	5%
Mastitis	6	2	33	100	0	2	50%	50%	0	0	0
Osteomyelitis	13	6	46	83	17	5	0	60%	40%	0	0
Fractures	89	26	29	92	8	24	4%	71%	25%	0	0
Arthritis, tendovaginitis	213	72	34	92	8	66	9%	42%	35%	5%	9%
Wounds, cellulitis ...	55	25	45	92	8	23	17%	61%	13%	4	4
Skin abscesses	682	163	24	86	14	140	17%	39%	41%	1%	1%
Other „	169	36	21	78	22	28	7%	46%	32%	0	14%
Burns	2	0	0	0	0	0	0	0	0	0	0

the hygiene and quality of meat or meat products. At *all* stages of production, meat foods are liable to contamination with micro-organisms which may affect their keeping quality or safety, and it is therefore essential not to restrict microbiological control to that capable of being exerted by a small abattoir laboratory, or indeed to any one stage alone. Such was never the concept of the German or Danish food scientists who pioneered this field, and it seems a grave misdirection of emphasis for the veterinary profession in Britain to pay so much attention to the need for abattoir laboratories and so little to the equally pressing need for

laboratory control over the manufacturing techniques, handling, and storage of prepared meat products.

2. The Work of a Food Control Laboratory

(*a*) *Centralisation*

Laboratory control of meat products in this country is carried out under several different aeges : chemical control, and control over falsifications by public analysists ; safety control by the public health laboratory service, and quality control of a general nature by a considerable number of laboratories attached to commercial undertakings. A great deal of research on all these aspects is, of course, carried out under the auspices of the Medical Research Council or the Department of Scientific and Industrial Research, and between all groups there is, in practice, considerable overlap of interest.

This division of responsibility between varied professional groups is a complete antithesis of the principle shown to be so effectively applied in both Denmark and Germany ; that is, that hygienic control of animals at slaughter and of the meat products derived from them, are technically inseparable, and that fully effective control can only be exerted by means of one dominating group of professional workers of suitably wide training and experience. In the case of both Denmark and Germany, the leading personnel consists of veterinarians specially trained in meat hygiene, food technology, microbiology and public health, and through the agency of the larger municipal laboratories, or regional laboratories under their direction, it has become possible to place the hygienic control of meat foods on a sounder scientific and administrative basis than has ever been achieved in this country. Generally, the majority of the professional staff in each laboratory are veterinarians, and in addition, many of the major laboratories are staffed by analytical chemists.

Control over food handlers and the investigation of outbreaks of food poisoning is, of course, exerted by the medical profession.

It is clearly impossible to emulate this principle under the continuing tradition of public health practice in this country, but there is no doubt that the advantages it has to offer deserve full investigation by veterinary authorities. It is suggested that the most appropriate sites for investigation are the veterinary schools, and that the expansion of orthodox veterinary diagnosis and research into the fields of food control, and ultimately the development of departments of food hygiene, receive early attention. There seems no other likely means for the veterinary profession to come to play a leading part in food control than to accept its responsibilities in this practicable way, and in both Denmark and Germany the initiative in this matter was taken by the veterinary schools many years ago.

(*b*) *The Scope of the Work*

The staff of a large municipal or central laboratory in Denmark consists of three to seven veterinarians, occasionally an analytical chemist, and an appropriate number of technicians (7 to 14). Much of the work is concerned with routine bacteriological examination of milk samples, and bacteriological, chemical and histological examination of meat products. Many new types of food product are examined from time to time. There is usually sufficient time available for the study of individual research problems, and in all the centres a good deal of organised research work is carried out. For meat products, this generally takes the form of quantitative studies of the flora of meat foods and attempts to derive some reasonable bacteriological standard of safety and quality. The subject is a complex one, and pathogens excepted, it has been impossible yet to decide the location of the limit for each bacterial group commonly found in any one of these types of food. On a local basis, however, routine examination of products prepared under known circumstances by one manufacturer has produced some valuable results, and a guide to the sort of standard that may have wider application. The experience of this type of work obtained in these laboratories is rarely approached in this country save in a few laboratories attached to large commercial undertakings.

A great deal of work is, of course, concerned with diagnostic and advisory work to the meat industry, and a very wide variety of defective products are examined and appropriate remedial measures instituted. All laboratories are, of course, concerned in some way with hygienic control of meat in the slaughterhouse (bacteriological meat inspection), and indeed three of the four central laboratories in Denmark are situated in slaughterhouses.

A feature of this work which receives great emphasis in both countries is the insistence that laboratory staff remain in close contact with field conditions : many of the staff, for example, act as meat inspectors or have district responsibilities for the control of food shops.

The technical aspects of the work and the nature of the problems involved are detailed in Appendix II of this Report, and further evidence is available from the list of references supplied.*

In this country experience has shown that in spite of the work carried out under the auspices of the public health laboratory service, and their willingness to assist food inspectors in every way, the concept of a meat control laboratory serving a wide region and specifically designed to meet the needs of food inspectors has in fact a great deal of attraction for them.

Attempts are currently being made by the Department of Veterinary Pathology in Liverpool to provide such facilities, and with the co-operation of the Sanitary Inspectors Association it has been possible to offer to most of the larger slaughtering centres in the North-west laboratory facilities covering general diagnostic work and the examination of all types of meat product, and to initiate a field experiment in bacteriological meat inspection. There is thus the nucleus of a regional meat laboratory, and with the experience gained from its work it is hoped to provide something of benefit to public health and the veterinary profession alike.

Reports on the work of the laboratory will be made at the appropriate time.

* The appendices and full list of references will be found in the bound Report lodged in the Library of the Royal College of Veterinary Surgeons.

(*Continued at foot of adjoining column*)

The British Small-animal Veterinary Association

THE inaugural meeting of this Association was held on March 7th at the Royal Veterinary College by kind permission of the Principal. Mr. C. E. Woodrow, who had been elected Chairman of the steering Committee on November 16th, 1956, took the chair. In the course of a short address he outlined the origin and history of the new association as follows:—

A request was received from the permanent Committee of the International Veterinary Congress that, with Mr. Hodgman as President and Mr. Singleton as Secretary, an international association of small-animal specialists should be organised. This was to be one of the specialist groups which should organise their section of the next International Veterinary Congress.

Following consultation with the Registrar of the R.C.V.S., as Secretary of the British Committee of the International Congress, with the Central Veterinary Society, and the B.V.A., and in the knowledge that several other countries already had small-animal organisations either in being or in process of formation. Mr. Hodgman and Mr. Singleton decided to take the steps necessary to form a British Small-animal Association. They sent a letter to THE VETERINARY RECORD, which appeared on September 8th, inviting correspondence from colleagues engaged in small-animal work. The response was good and a communication was sent to 50 small-animal practitioners inviting them to an exploratory meeting at the B.V.A. offices on November 16th. Thirty attended this meeting, with support by letter from 12 others. The meeting voted for the formation of a small-animal association and elected a steering committee, a President, Secretary, and Treasurer.

Mr. Woodrow ended by saying: " I will end with two observations which I hope may forstall certain criticisms which might justifiably be levelled against the new association by critics who are ill informed or not in possession of all the facts. The first is—where do we stand in relation to the B.V.A.? It is open to any body of veterinary surgeons who can command the support of at least 25 members to request Divisional status of the B.V.A. That is a matter for the future but it may well be that such a specialist organisation may be of better service to members by remaining free. The first of the aims and objects on which you will be asked to vote states that ' it is considered undesirable and impracticable for the association to act independently of the B.V.A. or R.C.V.S. and its function should be rather to act as liaison between members and the recognised negotiating committees of those two bodies.' This refers specifically to political matters and brings me to my second and final observation. I do trust that to-day's meeting will not develop at any stage into a forum for the discussion of political matters or expressions of dissatisfaction with the splendid work done by the B.V.A. committee in connexion with the animal welfare societies. The steering committee gave a lot of time and thought to this matter and decided that at this stage the best interests of small-animal practice would be served by acting as liaison between members and appropriate negotiating committees."

The aims and objects of the new association were described by four speakers. Mr. Michael Young discussed the proposal to maintain contact with appropriate committees of the B.V.A. and R.C.V.S. and to bring to their attention matters of interest and concern to the B.S.A.V.A. Mr. Brian Singleton

(*Continued on page* 376)

The Officers of the new Association. *Left to right,* Mr. S. F. J. Hodgman, Mr. C. E. Woodrow and Mr. Brian Singleton.

Harry Steele-Bodger Memorial Scholarship.—*Concluded.*

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THE ANNUAL B.V.A. CONGRESS, 1957, AT CAMBRIDGE

August 25th to 31st

Chairman of the Provisional Committee : Mr. W. C. MILLER, M.R.C.V.S., F.R.S.E.
Hon. Secretary : Dr. P. STORIE PUGH, M.B.E., M.C., T.D., M.A., PH.D., A.R.I.C.

PROGRAMME

(*Subject to minor alteration*)

Sunday, August 25th

At Home, by the host Division, The Eastern Counties Veterinary Society

Monday, 26th

MORNING			AFTERNOON			EVENING
9.30–10.45	11.0	11.30–12.45	2.15–3.25	3.45–4.55	5.0–6.30	
Official Opening of Congress Opening of Trade Exhibition	Council Meeting **(Arts School)**	Presidential Address by Mr. E. R. Callender, O.B.E., M.R.C.V.S. Annual General Meeting of the B.V.A. **(Lecture Theatre, Department of Zoology)**	Immunological phenomena in parasitic diseases *Author :* Dr. E. J. L. Soulsby, M.A., D.V.S.M., M.R.C.V.S. *Openers :* Dr. A. M. Dunn, M.R.C.V.S. K. B. Sinclair, M.V.SC. *Chairman :* Dr. E. L. Taylor, C.B.E. **(Lecture Theatre, School of Veterinary Medicine)**	The general examination of the bull for soundness with special reference to the assessment of fertility *Author :* P. G. Hignett, M.R.C.V.S. *Opener :* L. E. A. Rowson, O.B.E., M.R.C.V.S. *Chairman :* C. T. Murphy, M.R.C.V.S. **(Lecture Theatre, School of Veterinary Medicine)**	Tour of School of Veterinary Medicine	Official Reception at the Old Schools
			Tour of Animal Health Trust Equine and Canine Research Stations			
			Scientific Exhibition, 1.0–5.0			

Tuesday, 27th

MORNING			AFTERNOON			EVENING
9.15–10.30	11.0–11.45	12.0–12.45	2.15–3.25	3.45–4.55	5.30–6.45	
Myopathic conditions in animals *Author :* Dr. K. L. Blaxter *Opener :* Dr. J. N. Walton (Myopathy in Man) *Chairman :* Dr. W. R. Wooldridge, M.SC., F.R.I.C., M.R.C.V.S. **(Arts School)**	Collateral hazards from crop spraying *Author :* Professor Sir Solly Zuckerman, F.R.S. *Chairman :* E. R. Callender, O.B.E., M.R.C.V.S. President of the B.V.A. **(Lecture Theatre, Department of Zoology)**	Research problems in animal reproduction *Author :* Dr. T. R. R. Mann, F.R.S. *Chairman :* W. C. Miller, F.R.S.E., M.R.C.V.S. President E.C.V.S. **(Lecture Theatre, Department of Zoology)**	Bacterial endocarditis in cattle *Author :* E. T. Rees Evans, M.A., B.SC., M.R.C.V.S. *Openers :* P. J. N. Pinsent, B.V.SC. Dr. S. D. Elliott *Chairman :* Dr. A. W. Stableforth, D.V.S.M., M.R.C.V.S. **(Lecture Theatre, School of Veterinary Medicine)**	Mucosal disease *Author :* R. A. Huck, B.SC., M.R.C.V.S. *Openers :* A. L. Wilson, M.R.C.V.S. Dr. A. O. Betts, M.A., M.R.C.V.S. *Chairman :* C. H. Downe, M.R.C.V.S. **(Lecture Theatre, School of Veterinary Medicine)**	Films **Arts School**	Ladies' Guild Dance, 8.45–1.0
Oedema disease of swine *Author :* J. F. Timoney, M.R.C.V.S. *Opener :* M. K. Lloyd, B.V.SC. *Chairman :* D. F. Oliver, B.SC., M.R.C.V.S. **(Arts School)**			Tour of School of Veterinary Medicine	Tour of School of Veterinary Medicine		
Scientific Exhibition 9.0–5.0						

Wednesday 28th

MORNING			AFTERNOON			EVENING
9.15–10.30	11.0–11.45	12.0–12.45	2.15–3.25	3.45–4.55	5.10–6.15	
Physiological foundations of milk production and lactational disorders *Author :* Dr. B. A. Cross, M.A., M.R.C.V.S. *Opener :* Dr. A. Marr, B.SC., M.R.C.V.S. *Chairman :* Professor E. C. Amoroso **(Arts School)**	Veterinary and human medicine *Author :* Professor A. L. Banks *Chairman :* Professor L. P. Pugh **(Lecture Theatre, Department of Zoology)**	Studies of the normal animal in relation to disease *Author :* Sir William Slater *Chairman :* J. N. Ritchie, C.B., B.SC., F.R.C.V.S., D.V.S.M. **(Lecture Theatre, Department of Zoology)**	Respiratory diseases of sheep *Author :* A. J. Stevens, B.V.SC., DIP.BACT.,M.R.C.V.S. *Opener :* G. R. Smith, DIP. BACT. D.V.S.M., M.R.C.V.S. *Chairman :* D. Cameron, B.SC., D.V.S.M., M.R.C.V.S. **(Arts School)**	Enterotoxaemia of sheep *Authors :* Dr. J. J. Bullen, M.R.C.V.S., and Mrs. Irene Batty, B.SC. *Opener :* W. T. Rowlands, D.V.S.M., M.R.C.V.S. *Chairman :* Dr. K. C. Sellers, B.SC., D.V.S.M., M.R.C.V.S. **(Arts School)**	Films **(Arts School)**	B.V.A. Annual Banquet at the Guildhall, 7.30 for 8.0
The treatment of fractures in farm animals *Author :* J. Hickman, M.A., M.R.C.V.S. *Opener :* A. C. Shuttleworth, M.V.SC., F.R.C.V.S. *Chairman :* Professor A. Messervy **(Arts School)**			Some problems of reproduction in the mare *Author :* F. T. Day, F.R.C.V.S. *Opener :* C. S. Haselden, M.R.C.V.S. *Chairman :* F. G. Waddington, B.V.SC. **(Arts School)**	Convulsive syndromes in newborn foals *Authors :* L. W. Mahaffey, B.V.SC., and P. Rossdale, B.A., M.R.C.V.S. *Opener :* Dr. A. C. Fraser, B.V.SC. *Chairman :* P. J. Mitchell, M.R.C.V.S. **(Arts School)**		

Scientific Exhibition, 9.0–5.0

Thursday 29th

MORNING			AFTERNOON			EVENING
9.15–10.30	11.0–11.45	12·0–12.45	2.15–3.25	3.45–4.55	5.15–6.45	
Some diseases of suckling pigs *Author :* Dr. R. F. W. Goodwin, M.A., B.SC., M.R.C.V.S. *Opener :* H. I. Field, M.SC., M.R.C.V.S. *Chairman :* Professor H. G. Lamont **(Arts School)**	The role of immunology in biology and medicine *Author :* Dr. R. R. A. Coombs, B.SC., M.R.C.V.S. *Chairman :* Sir Alan Drury, F.R.S. **(Lecture Theatre, Department of Zoology)**	Some factors which may influence the aetiology of diseases of the young *Author :* Professor R. Lovell *Chairman :* Professor W. I. B. Beveridge **(Lecture Theatre, Department of Zoology)**	Studies in Scrapie *Author :* A. C. Palmer, M.A., M.R.C.V.S. *Opener :* Dr. W. S. Gordon, C.B.E. *Chairman :* R. E. Glover, M.A., D.SC., F.R.C.V.S. **(Arts School)**	The natural history of parasitic bronchitis *Authors :* Dr. W. F. H. Jarrett, M.R.C.V.S. Dr. W. I. M. McIntyre, M.R.C.V.S. F. W. Jennings, B.SC., M.AG., and Dr. W. Mulligan, M.SC. *Opener :* W. H. Parker, B.SC., M.R.C.V.S. *Chairman :* J. J. Low, M.R.C.V.S. **(Arts School)**	Tour of School of Veterinary Medicine	8.45–10.30 Films **(Arts School)** Alumnus Association Dinners
Present-day problems in veterinary therapeutics *Author :* Professor G. F. Boddie *Opener :* A. H. Dawson, M.R.C.V.S. *Chairman :* J. McConnachie Ingram, M.R.C.V.S. **(Arts School)**			Films (Small animals) **(Arts School)**	The neuropathological differentiation of symptomatic ataxia and paralysis of pigs in Britain (with film) *Author :* J. T. Done, B.V.SC. *Opener :* J. B. M. Gellatly, B.SC., M.R.C.V.S. *Chairman :* E. Cotchin, M.R.C.V.S. **(Arts School)**		

Golf Competition and Visit to Messrs. Bayers

Scientific Exhibition 9.0–5.0

Friday 30th

MORNING			AFTERNOON			EVENING
9.15–10.30	11.0–11.45	12.15	2.15–3.25	3.30–4.40	5.40–6.30	
Respiratory diseases of pigs *Author :* P. Whittlestone, M.A., B.SC., M.R.C.V.S. *Opener :* W. A. Noble, M.R.C.V.S. *Chairman :* Dr. W. S. Gordon, C.B.E. **(Arts School)**	Some clinical observations on the radiotherapy and chemotherapy of malignant tumours in dogs *Authors :* Professor J. S. Mitchell, F.R.S., and Dr. I. A. Silver, M.A., M.R.C.V.S. *Chairman :* Professor T. J. Bosworth **(Lecture Theatre, Department of Zoology)**	Congress Photograph	The Surgical correction of certain stifle conditions in the dog with special reference to the repair of the anterior cruciate ligament (With film) *Author :* W. B. Singleton, M.R.C.V.S. *Openers :* M. Young, M.R.C.V.S. K. M. Dyce, B.SC., M.R.C.V.S. *Chairman :* R. N. Phillips, M.R.C.V.S., D.V.S.M. **(Lecture Theatre, School of Veterinary Medicine)**	The training, management and employment of various categories of dogs used by the Army *Author :* J. H. Wilkins, B.SC. M.R.C.V.S. *Opener :* N. Liakoff, M.B.E. *Chairman :* S. F. J. Hodgman, M.R.C.V.S. **(Lecture Theatre, School of Veterinary Medicine)**	Demonstration of Dog Handling by the R.A.V.C. (Preceded by Garden Party at the School of Veterinary Medicine, 4.40)	Presidential Reception and Dance at the Guildhall 9–2
The Relationship of soundness and conformation in the horse *Author :* H. W. Dawes, C.B.E., F.R.C.V.S. *Opener :* E. Brayley Reynolds, O.B.E., M.R.C.V.S. *Chairman :* E. Wilkinson, M.R.C.V.S. **(Arts School)**			Tour of Houghton Poultry Research Station			

Scientific Exhibition, 9.0–5.0 (Exhibition closes)

Saturday 31st

Closing meeting of Congress.

First meeting of the Council, 1957–8.

The British Small-animal Veterinary Association —*Concluded.*

spoke on the advantages of keeping a current record of research workers and of the subjects upon which they were engaged. Miss Joshua discussed the usefulness of the new association being in a position to advise members of the laboratory facilities provided by organisations and individuals. Mr. Bruce V. Jones discussed the value of maintaining a reference index of work published in world literature relating to small-animal veterinary science and the publication of a journal giving abstracts from this literature. Mr. G. N. Henderson introduced the idea of half- or whole-day meetings being held in different parts of the country, and said that it was intended to create small regional committees to hold informal meetings in their own areas. Lastly, Mr. Hodgman, President of the International Association of Small-animal Specialists spoke of the value of the new association in putting forward suggestions for papers to be presented at the International Veterinary Congress.

Officers and Executive Committee

The next matter to be dealt with was that of subscriptions. These were to be 2 guineas per annum for full members and 1 guinea per annum for associate members. Only full members would receive the publications referred to above.

There followed the election of officers as follows:—

President: Mr. C. E. Woodrow.

Secretary: Mr. W. Brian Singleton.

Treasurer: Mr. S. F. J. Hodgman.

Executive Committee: the above gentlemen, together with Mr. Bruce Jones (Technical Information and Abstracting), Mr. G. N. Henderson (public relations), Mr. M. Young (political liaison), Miss J. O. Joshua (laboratory liaison), and Mr. Gordon Knight (representing the teaching profession). In addition one member from each of seven districts was appointed to the executive committee: London Metropolitan, Mr. W. M. Wadman Taylor; South and South East England, Mr. Rhodes, Mr. Startup; South and South West Wales, Mr. Townson; North and Mid Wales, Mr. Lauder; North of England, Mr. Leask; East of England, Mrs. Jackson, and Scotland, Mr. A. Thomson.

With regard to other areas it proved impracticable at this stage to make appointments, and it was agreed that the executive committee should co-opt as necessary.

The business part of the inaugural meeting having ended at 4.35 p.m. the members collected in the Anatomy Demonstration Theatre of the College where Mr. A. P. Harrop gave a most interesting talk, illustrated by slides, on the collection of semen from the dog and artificial insemination.

In Parliament : The P.D.S.A. Private Bill

The P.D.S.A. Private Bill was rejected by the House of Commons on Wednesday evening. The second reading was moved by Mr. Iremonger, Conservative (Ilford, North). He spoke for well over an hour, at times with a degree of warmth that was commented on unfavourably by later speakers. He was supported by Mr. Dodds, Labour (Erith and Crayford). The rejection of the Bill was moved by Captain Duncan, National Liberal Unionist (South Angus*), and was seconded by Mr. Tom Williams, Labour (Don Valley), the former Minister of Agriculture. They were supported by Sir Thomas Moore, Conservative (Ayr), Mr. Champion, Labour (Derbyshire, South East) and Dr. Barnett Stross, Labour (Stoke-on-Trent, Central). Mr. J. B. Godber, Joint Parliamentary Secretary to the Ministry of Agriculture, for the Government, advised the House against the Bill, and a well-filled House from both parties made it so clear that it was against the Bill that the Speaker did not call a division.

The profession was represented at the debate by Mr. E. Wilkinson, Senior Vice-President of the B.V.A., Dr. W. R. Wooldridge, Chairman of the B.V.A. Parliamentary and Public Relations Committee, Professor L. P. Pugh, President of the R.C.V.S., Mr. Harry Sumner, Mr. W. G. R. Oates, and Mr. D. F. Oliver, Honorary Secretary of the B.V.A.

Next week we shall give a full summary of the debate as reported in *Hansard*. It lasted for nearly three hours.

Animal Welfare Societies

MR. IREMONGER (March 18th) asked the Minister of Agriculture, Fisheries and Food how many of the 26 licences to existing employees of the People's Dispensary for Sick Animals which he was recommended in paragraph 77 of the Report of the Committee on Licences under Section 7 of the Veterinary Surgeons Act, 1948, to issue, have, in fact, been issued.

MR. AMORY: The recommendation referred to covered the period to the end of 1953 after which, the Committee concluded, there would be sufficient veterinary surgeons to meet the needs of animal welfare societies provided use was made of part-time services. Seventeen licences were applied for shortly after the Committee reported and these were granted. One further licence was applied for in 1953 and this was not granted.

MR. IREMONGER: Does not my right hon. Friend recognise that these 26 licences were all virtually promised as a result of the Report of the Champion Committee and that the People's Dispensary for Sick Animals has very good grounds for grievance in the withholding of further licences?

MR. AMORY: I believe that all the licences which were applied for immediately, namely 17, were granted.

MR. CHAMPION: Were the 17 licences which were granted limited to the 10-year period as recommended by the Committee?

MR. AMORY: I believe they were the terms on which they were granted in accordance with, I think, the recommendations of the Committee over which the hon. Gentleman presided.

MR. IREMONGER asked the Minister of Agriculture, Fisheries and Food (1) if he will make a statement on the availability of the services of full-time veterinary surgeons with reference to paragraph 75 of the Report of the Committee on Licences under Section 7 of the Veterinary Surgeons Act, 1948;

(2) if he will make a statement on the availability of the services of part-time veterinary surgeons with reference to paragraph 75 of the same Report.

MR. AMORY: The number of veterinary surgeons registered in the United Kingdom at the end of 1956 was about 6,000, which is about 1,000 more than in 1949 and about 650 more than when the Committee on Licences reported at the beginning of 1952. There is still a strong demand for veterinary surgeons, but I see no reason why the part-time services of a considerable number of those in private practice should not be available to animal welfare societies.

MR. IREMONGER: Does not my right hon. Friend recognise that the Ministry of Agriculture, Fisheries and Food recommended against the use of part-time services in this connexion when it was negotiated before the introduction of the Veterinary Surgeons Bill, and is he now discounting this whole consideration when applications are made for licences under Section 7.

MR. AMORY: I am bound to say that my present view is that the use of qualified veterinary surgeons on a part-time basis will provide a very great deal of help to the P.D.S.A.

MR. DODDS: Does not the Minister appreciate that this organisation which has done some wonderful work is being crippled because the Minister will not be sympathetic to its claims, which are based largely on helping the sick animals of poor people?

MR. AMORY: I agree with the hon. Gentleman as to the good work which this society has done, but I cannot agree with the view expressed in the last part of his question.

CAPTAIN DUNCAN: Would it not be true to say that every other animal society uses only qualified veterinary surgeons for whole-time or part-time services and that there is no reason for a special exemption in the case of this society?

MR. PEART: Is the Minister aware that if this organisation paid salaries of a reasonable kind, as does the R.S.P.C.A., it might be able to solve its difficulties and get whole-time veterinary surgeons? Is the right hon. Gentleman further aware that the veterinary profession is prepared to negotiate with this body about part-time service and is quite willing to look at the problem objectively?

MR. AMORY: I think the whole House will be anxious to ensure as far as it can that sick animals receive the benefit of treatment by qualified veterinary officers as far as ever possible.

Animal Boarding Establishments Bill

The Animal Boarding Establishments Bill failed to get a quorum on Thursday, March 14th, and again on Wednesday, March 20th. The Bill will now go to the bottom of the list of Private Members' Bills as indicated in our issue of March 9th.

* Member of the Council, R.C.V.S.

Current Literature

ABSTRACTS

Some Results of Phenothiazine as a Means of Controlling Gastrointestinal Parasites of Calves. SHELTON, G. C., RODABAUGH, D. E., and ELDER, C. 1956. *Vet. Med.* **51.** 551-5.

The authors record the results of two experiments carried out in 1954 and 1955.

In 1954 four calves were raised on elevated, slatted floors which were washed daily and the faeces removed. When they were 10 weeks old, these calves were " relatively free of parasites " and they were then given by the mouth about 15,000 infective larvae obtained by culture from the faeces of different Missouri herds, a similar dose being given daily for the next 10 days. Two weeks before these doses began, two of the calves were given 1.5 to 2 grammes phenothiazine daily in the same grain ration given to the other two calves. All the calves began, 18 to 20 days after the first dose of larvae, to pass trichostrongylid eggs and, after the first week of the prepatent period, the egg counts were usually 200 to 300 eggs per gramme, as estimated by the Lane centrifugation method on weekly samples. There was no detectable difference between the egg-output of the calves given phenothiazine and those from which it was withheld. But, by the 10th day of the prepatent period, the number of larvae cultured from the calves given phenothiazine was considerably less than 1 per cent. and in some instances no larvae were found. About nine weeks after the first dose of larvae all four calves were autopsied and a Table shows the number of *Haemonchus contortus, Cooperia, Strongyloides,* and *Oesophagostomum* found, the infections being all " relatively mild." The numbers of *Haemonchus contortus* found in the calves given phenothiazine was, however, considerably less than it was in the controls.

In the second experiment, carried out in 1955, six calves raised as free from parasites as possible and six controls were divided into three groups. Group 1 constituted four controls; these were not infected and they received no phenothiazine. Group 2 received 1.5 gramme phenothiazine daily in the feed for the first 60 days and 2 grammes for the remainder of the experiment; each of these four calves was given 120,000 larvae in divided doses over 35 days. Group 3 consisted of four calves given the same doses of larvae, but no phenothiazine. All these three groups were put in portable pens on a newly-raised pasture.

Towards the end of the experiment the egg-counts of calves in Group 3 were considerably higher than those of calves in Group 2. Group 2 gained an average of 19 lb. per calf more than Group 3 and 7 lb. more than the controls of Group 1, though the calves in Group 1 showed " an almost imperceptible level of parasitism." There were, however, no statistically significant differences in the weight gains of the three groups.

To find out the number of infective larvae on the pastures four other calves were placed, two in Group 2 and two in Group 3. These calves developed coccidiosis, but, after 10 weeks on the pastures, three of them were autopsied and it was found that the two taken from Group 2 (receiving phenothiazine) had much lighter infections with *Haemonchus, Ostertagia* and *Oesophagostomum,* than the third calf, from Group 3, which had more *Cooperia.*

The egg-counts of the calves given phenothiazine were only moderate throughout. The authors concluded that there was no evidence that phenothiazine materially reduced the egg-production of the parasites. They recognise, however, that phenothiazine affects different species of trichostrongylid nematodes differently and refer to the work of Mayhew, who found (1954. *Proc. Helm. Soc. Wash.* **21.** 10) that it did affect *Oesophagostomum,* but not (1950. *J. Parasitol.* **36.** 536) *Bunostomum phlebotomum.*

The authors further conclude that the small amounts of phenothiazine given daily greatly reduced the number of larvae that developed in cultures, but did not seem to alter the total egg-output of the parasites, nor to alter the prepatent period. Calves given phenothiazine made slightly better weight-gains. They think that their observations on the small number of calves used indicate that the parasitism acquired on pastures by young dairy calves was considerably less when all older animals on those pastures were getting low-level phenothiazine.

G. L.

Pig Housing and Fattening Efficiency. CLARKE, G. B. (1956). *Agriculture, Lond.* **63.** 340-2.

The author states that the factors involved in an economic system of fattening pigs are the use of a thrifty strain of pig, the elimination of disease, the use of a well-balanced ration, and the provision of an environment that will not depress the inherent fattening ability of the pigs. At present too little is known of the interaction of these factors to suggest a general policy for the most economic approach to pig fattening. Thus, the advisability of investing capital in better housing would depend on the type of pigs kept and the feeding-stuffs available.

Records kept on 38 farms in East Anglia suggest, however, that under ordinary, commercial conditions the conversion rates of fully housed pigs are better that those of pigs with outside runs which, in turn, are better than those of yarded pigs (3.99, 4.25, and 4.36 respectively). The differences between the groups was greatest in the winter months. In the fully housed pigs the conversion rate was poorer in the summer months than in the winter, apparently due to a higher incidence of disease.

On the basis of these figures the author suggests that an expenditure on improved housing of up to £20 per pig capacity might be economically justified on farms where the piggery was responsible for restricting the efficiency of food use. Such expenditure would never be justified without first considering the improvements that might result from obtaining better pigs and providing the rations and general management most suited to them.

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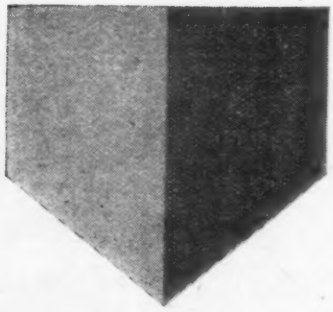

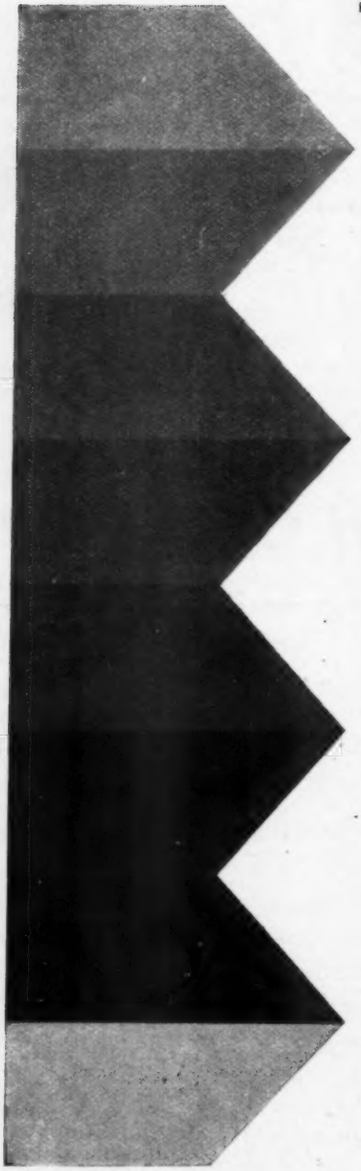

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News and Comment

UFAW EASTER CONGRESS

This Congress will be held at Mansfield Hall, University of Reading, from Tuesday, April 2nd, to Friday, April 5th. The programme will include:—

(Tuesday at 8.15 p.m.): *Humaneness in Science* by Major C. W. Hume, M.C., B.SC., Secretary-General of UFAW.

(Wednesday): *Supplements and Additives to Feeding-stuffs* by Dr. N. S. Barron, M.R.C.V.S.; visit to the Ministry of Agriculture Veterinary Laboratory at New Haw, Weybridge; films.

(Thursday): *The Assessment of Pain in Animals* by Dr. Phyllis G. Croft, M.R.C.V.S., UFAW Research Fellow; *The Protection of Deer in Great Britain* by Mr. Victor Ross; visit to the National Institute for Research in Dairying.

8.15 p.m. Social and dancing.

(Friday): *Mink Farming* by Mr. A. F. Bell; Questions and Suggestions—an open session.

The inclusive fee for the Congress is £4 4s.; reduced fee for students, £2. These fees include full board and all expeditions.

Enquiries and applications (all bookings should be accompanied by the full fee or a deposit of 10s.) to: Miss Williams, UFAW, 7a, Lamb's Conduit Passage, London, W.C.1. All members of the profession and veterinary students will be welcome.

THE B.O.C.M. POULTRY AWARD

At an official luncheon on March 7th, held at Grosvenor House, London, Mr. G. Chipperfield, C.B.E., Chairman of British Oil & Cake Mills Ltd., presented his company's poultry award to Dr. R. F. Gordon, director of the Houghton (formerly Animal Health Trust) Poultry Research Station. Among those present were the President of the Royal College, Professor Pugh; the Registrar, Mr. W. G. R. Oates; the Chief Veterinary Officer, Mr. J. N. Ritchie, C.B.; Dr. W. S. Gordon, C.B.E., and Mr. J. D. Blaxland.

In making the presentation Mr. Chipperfield said that one of the greatest benefits to the poultry industry

resulted from the close liaison which exists between official research workers and the primary producer. "Dr. Gordon personifies this excellent spirit of co-operation. Since graduating from Aberdeen University in 1930, he has shouldered increasing burdens of responsibility in an ever widening field of endeavour. The thanks of the whole poultry world are due to Dr. Gordon for his outstanding work and contribution to its prosperity."

PROFESSOR BERNARD GORTON

Professor McCunn writes:—

Bernard Gorton died in a nursing home at Bournemouth on February 23rd, 1957. With his passing yet another link with the "old" London College has been severed. He was a member of a very old veterinary family which had been in business in Aldgate (London) for many years. The Gortons were related to the Farrows, a family equally old in the profession, members of which practised in Commercial Street, Aldgate, and in Essex. Henry Gray was related to the Farrows and he was an Essex man also.

The Gortons had a pharmaceutical chemist's business in Aldgate and they also specialised in veterinary medicines. The latter were famous in London and the surrounding districts. Bernard Gorton and his father were members of the Pharmaceutical Society and Ms.R.C.V.S.

Bernard qualified as a chemist and joined the family business. I asked him why he became a vet-

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In Brief.—*Concluded.*

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erinary surgeon. He replied, " One day father said to me ' we have always had a veterinary surgeon in our business, I want you now to qualify as a M.R.C.V.S. so that the tradition may be continued.' I knew on which side my bread was buttered and so I became a veterinary surgeon."

Gorton was a man of exceptional talent. He did well in the pharmaceutical course, and in the veterinary sphere his student career was brilliant. He attained first-class honours standard in his first and third examinations and took first prize in practically every subject in the curriculum. He gained the centenary prizes and the Coleman and Walley medals. His achievement would have been great by any standard but it is especially so when one remembers that he was at work in the family chemist shop each night and at the week-ends.

He qualified M.R.C.V.S. in July 1910. He was appointed to be assistant to Professor E. S. Shave in the Anatomy Department at Camden Town and a very happy association began. The two men were well suited. Both were of great intellectual brilliance but both had their feet firmly planted on the ground. They had no time for the meanderings and jargons of pompous pseudo-scientists. The financial rewards of the post were not great, £150 per year, so Gorton continued to work in the business in Aldgate after College hours.

After a time he became veterinary surgeon to the Zoological Gardens which he visited most days during the luncheon interval. It was his custom to take one or two students on these occasions and there was some competition for this honour. His knowledge of the anatomy, habits, and ailments of the wild creatures was profound, and he gave freely of this knowledge. He was never in a hurry yet he was a remarkably quick and efficient worker. It was not unusual for him to see two or three sick animals or birds, do one or two minor operations, and be back at the College in time for the afternoon class at 2 o'clock. He knew how to handle the attendants and get the best out of them, and some of the older men who knew him still speak of him with affection and respect.

At the College he was responsible for the dissecting room, bone room, and tutorial classes. These classes were unique; they were completely devoid of padding for he could " distill " the most abstruse facts into their fractions in simple language which was within the comprehension of the worst dullard.

His duties were not confined to anatomy alone. He took his turn and was equally at home in the out-patients' and subscribers' clinics. He was a good diagnostician and operator, but although he was a pharmacist his medical procedures were of the simplest. He prescribed and compounded using simple common drugs but he laid great stress on diet and nursing. He was well informed on all facets of the curriculum and being very approachable he was often consulted by the students on their many difficulties. He could give them valuable tutorial assistance on any subject ranging from those of the first to the final year. His academic dissertations were always well flavoured with incident, anecdote, and personal reminiscences, which would make the driest of topics interesting and vital.

In 1920 on the retirement of Professor Shave, Gorton was appointed to succeed him. He held the post for six years until he retired to live in Bournemouth. Promotion made no difference to the man, whilst he held the position with dignity and competence he was still " Ben Gorton," loved and respected by the students and willing to help them in their troubles and difficulties.

Ben Gorton was a Londoner by birth and at heart, and he was blessed with a full modicum of cockney wit and repartee. When I was at the London Hospital I often spent a pleasant hour with him in the evenings in the shop in Aldgate. He would be behind the counter quite often with his jacket off and sleeves rolled up dispensing pills and bottles of medicine to a constant stream of East End folk. There was plenty of " back chat " between the chemist and his customers and Ben did not come off second best. As he took their cash he placed it on a shelf behind the counter and it was arranged in orderly piles of silver and copper.

He was a man of medium stature who wore clothes of a set style. The cloth was always a robust type and grey in colour, rather high cut at the revers of both jacket and waistcoat. His trousers were on the narrow side, he favoured a polka-dot bow tie and laced-up boots. He evidently remained faithful to the styles of his youth. A hard bowler hat completed the ensemble. He would discard his jacket in warm weather and one often saw him with his thumbs in his waistcoat during his perambulations about the College. He held Shave and Macqueen in high regard, in fact in a recent letter to me he said, " The veterinary profession died with Macqueen and Shave."

Photo by H. Burgess, R.V.C.

Gorton was a man of exceptional brilliance, and a comparative anatomist of great erudition. He never courted the limelight, and he put pen to paper only on rare occasions, yet, like his colleague T. J. Evans, the Professor of Biology, he was a man to whom more verbose people would turn when in search of information. Some think it was a great loss to the profession when such an able man retired from academic work so early in life, but Gorton had no regrets. He did a little practice in Bournemouth, he took an interest in the local museum, and during the war he placed his chemical knowledge at the service of the A.R.P. authorities.

His old students and friends will treasure their memories of Ben Gorton.

Mr. T. J. Margarson writes:—

"Ben" Gorton was known to many of us who were at Camden Town in the years 1916-20. He had a chemist's shop in Whitechapel, and I often accompanied him from Liverpool Street to the Zoo where he sometimes worked. He was a kindly, unassuming Londoner, ever ready to help "his" students who will always recall his name with affection. The announcement of his passing brings back memories of M'Fadyean, Macqueen, Shave, Edwards, and, thank goodness, others still alive.

PERSONAL

Births

AITKEN.—On March 9th, 1957, at the Norfolk and Norwich Hospital, Norwich, to Betsi Margaret (*née* Arthur), wife of George Aitken, M.R.C.V.S., "Homefield," Old Buckenham, Norwich, a son, Douglas George.

ARNOLD.—On March 14th, 1957, to Megan, wife of Geoffrey Arnold, B.SC., M.R.C.V.S., of London Road, Kettering, a sister and a brother for Richard and George.

BRIGGS.—On March 11th, 1957, to Mary (*née* Cawthorn), PH.D., B.SC., and Clive A. E. Briggs, PH.D., M.R.C.V.S., Highwoods Lodge, Burghfield Common, Berks, a son (Anthony Stephen), brother for Martin.

FORSYTH.—On March 13th, 1957, to Rosamund, wife of Douglas Forsyth, M.R.C.V.S., of 24, Darthill Road, March, Cambs., a son, John Ewan, brother for Michael.

HEDGER.—On February 23rd, 1957, at Eldoret, to Sylvia, wife of R. S. Hedger, M.R.C.V.S., of Nandi, Kenya Colony, a daughter, Wendy Jane, sister for André and Guy.

MAYNARD.—On March 13th, 1957, to Evelyn (*née* Gay), wife of Harvey Maynard, M.R.C.V.S., of 55, South Court Avenue, Dorchester, a sister for Ann (Katherine).

SIMS.—On February 21st, 1957, to Joan, wife of Frank W. Sims, B.V.SC., M.R.C.V.S., of 12, Shrewbridge Road, Nantwich, a daughter, Caroline Jane.

WICKS.—On March 14th, 1957, to Judith, wife of Brian Wicks, M.A., B.V.SC., M.R.C.V.S., of Chippenham, a son.

Professor Alexander Robertson is visiting Yugoslavia for the British Council to lecture at the invitation of the Yugoslav authorities from March 29th to April 17th. His programme is being arranged by the Yugoslav Veterinary Association and he will lecture to, and hold discussions with, veterinary surgeons in Belgrade, Zagreb, and possibly Ljubljana. His lecture subjects include: the state of veterinary research in Great Britain and the latest research on deficient nutrition among animals. He will break his outward journey at Zurich and homeward journey at Vienna in order to make further contacts with veterinary surgeons.

R.C.V.S. OBITUARY

We record with regret the death of the following member of the profession:—

BROAD, James Cottle, Yesnaby, Cadgwith, Helston, Cornwall. (Captain late R.A.V.C. (T.A.).) Graduated London, December 15th, 1903. Died March 10th, 1957.

COMING EVENTS

March

28th (Thurs.). Meeting of the British Veterinary Poultry Association at the Royal Veterinary College, Camden Town, N.W.1, 11 a.m.

73rd Annual General Meeting of the Western Counties Veterinary Association at the Rougemont Hotel, Exeter, 2.35 p.m.

Extraordinary General Meeting of the Central Veterinary Society at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

29th (Fri.). Annual Dinner-Dance of the East Midlands Division at the George Hotel, Nottingham, 7 p.m.

30th (Sat.). Annual Convention of the Ceylon Veterinary Association in the Queen's Hotel, Kandy, Ceylon.

April

3rd (Wed.). Meeting of the Southern Counties Veterinary Society at the Grand Hotel, Bournemouth, 7.30 p.m.

General Meeting of the Midland Counties Veterinary Association at the Green Dragon Hotel, Hereford, 2.30 p.m.

4th (Thurs.). Annual General Meeting and Dinner of the Lakeland Veterinary Association at the Rainbow Hotel, Kendal, 6 p.m.

All-day Meeting of the Central Veterinary Society at the Royal Veterinary College, Camden Town, N.W.1, 10.30 a.m.

5th (Fri.). Ordinary General Meeting of the Society for the Study of Animal Breeding at the Royal Veterinary College, Camden Town, N.W.1, 11.30 a.m.

6th (Sat.). Annual Dinner of the B.R.X. Club at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

9th (Tues.). 19th Ordinary General Meeting of the A.V.T. & R.W.S. in the Lecture Theatre No. 1, Royal Veterinary College, Camden Town, N.W.1, 11.30 a.m.

10th (Wed.). Ordinary Meeting of the Ayrshire Veterinary Association in the Station Hotel, Ayr, 2.30 p.m.

17th (Wed.). Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

20th (Sat.). Annual Dinner of the R.V.C. '52 Club at Ye Miller of Mansfield, Goring.

Meeting of the Scottish Group of the Nutrition Society in Aberdeen for a Symposium on Clean Food.

May

8th (Wed.). UFAW Symposium on "Human Technique in the Laboratory" in the Harkness Hall, Birkbeck College, Malet Street, London, W.C.1, 9.45 a.m.

17th (Fri.). Meeting of the R.A.V.C. Division at the National Institute for Research in Dairying, Shinfield, Reading, 11 a.m.

24th (Fri.). 165th Annual Ball of the Royal Veterinary College Students' Union Society at the Royal Veterinary College, Camden Town, N.W.1, 9 p.m.

BRITISH VETERINARY ASSOCIATION QUARTERLY MEETINGS IN EDINBURGH

Wednesday, April 10th—Royal (Dick) School of Veterinary Studies

10.15 a.m. Small-Animals Committee.
2.15 p.m. Home Appointments Committee.
4.00 p.m. Farm Live-stock Committee.

Thursday, April 11th—Royal (Dick) School of Veterinary Studies

10.00 a.m. Veterinary State Medicine Committee.
11.30 p.m. Parliamentary and Public Relations Committee.
2.15 p.m. General Purposes and Finance Committee.

Friday, April 12th—Royal (Dick) School of Veterinary Studies

10.15 a.m. Council Meeting.

"THE LITTLE MORE AND HOW MUCH IT IS"

"See you later, alligator?" vociferously enquire the male practitioners of rock 'n roll, to which (as every veterinary surgeon knows) the other sex genteelly respond, "in a while, crocodile." Thus, among saurians, it would seem, romantic exchanges are direct and without ambiguity. In other reptile circles things are more complicated.

At the time of writing, a six-foot boa-constrictor, Bertie, has escaped from a London pet shop, and vivacious press reporters have hinted at the possibility of his snapping up such unconsidered trifles as poultry, cats, puppies, and even babies in their perambulators. In order to avoid such catastrophies—remote as they may be from actual fact—the proprietor of the pet shop hit upon the idea of introducing another boa-constrictor, Marilyn, into the vacated quarters. This stratagem was based upon the assumption that the snakes, being victims to those emotions from which even their betters are not immune, would find attraction in each other's society, and the wanderer would return to its lair. The plan, however, encountered a singular obstacle. The owner of the pet shop, while satisfied that Miss (or Mrs.) Marilyn was of the gentler sex, could not say, with positive assurance, that Bertie was definitely Bertie and not Albertina. "A boa-constrictor," wrote *The Times* when referring to the problem, "is difficult to sex. Bertie remains an enigma." Between the time of writing these words and the time of their publication, Bertie (or Albertina) may reappear and gladden the heart of his owner—for he represents an outlay of about £18. But should he fail to do so, the difficulty may be not so much one of sex as of psychology. Bertie is six feet long, while Marilyn is seven; and the whole literature of romance contains no single example of a Leander who was shorter than his Hero. True, Victorian heroines were, for the most part, "divinely tall"; but the implication was that their swains, though less divine, were taller still. That foot in length may prove the barrier that will separate Marilyn from Bertie, charm she never so wisely.

Perhaps some research worker into the mystery of animal behaviour will enlighten us with an opinion?

Later. Since the foregoing was written Bertie has reappeared. His manner was described by his owner as "frisky." Readers will draw such conclusions as they see fit; but it would seem that the psychological theory is exploded.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Anglesey. Rhos Owen Farm, Menai Bridge (Mar. 12).

Herts. Sheepcote Farm, Lower Road, Gt. Amwell, Ware (Mar. 11).

Kirkcudbright. Dairy Farm, Netherhall, Bridge of Dee, Castle Douglas (Mar. 14).

Leics. Abbotts Oak Farm, Greenhill, Coalville (Mar. 14).

Northants. Manor Farm, Pattishall, Towcester (Mar. 9).

Notts. Brookhouse Farm, Main Street, Linby (Mar. 9).

Oxford. Manor Farm, Hampton Gay (Mar. 9).

Roxburgh. Berryhill, Kelso (Mar. 12).

Sussex. Crays Farm, Thakeham, Pulborough (Mar. 12).

Yorks. Hesketh House Farm, Bolton Abbey, Skipton (Mar. 11); Laund House Farm, Moor Monkton (Mar. 12).

Fowl Pest

Lancs. Martin Hall Farm, Moss House Lane, Much Hoole (Mar. 10); Moss Villa, Moss House Lane, Much Hoole (Mar. 11); 11, Oaklands Avenue, Hesketh Lane, Tarleton; Haighton Hall, Grimsargh; Fields Farm, off Chapel Lane, Longton; The Hawthorns, Gill Lane, Longton (Mar. 12); South View, Gill Lane, Longton (Mar. 13); Longcroft, Gill Lane, Longton; Dunwold, Liverpool Old Road, Longton (Mar. 14).

Suffolk.. Rouses Farm, Stoke by Nayland, Colchester (Mar. 13).

Yorks. Westfield House Farm, Black Road, Leeds, 9 (Mar. 13).

Swine Fever

Essex. Pentlow Mill, Pentlow, Great Yeldham, Halstead (Mar. 14).

Kent. White Oak Villa, London Road, Swanley (Mar. 14).

Lancs. Annexe Farm, County Mental Hospital, Rainhill, Liverpool (Mar. 12).

Leics. Bridge Farm, Elmesthorpe (Mar. 14).

Norfolk. Hall Farm, Horstead, Norwich (Mar. 12).

Notts. Bunnison Lane Farm, Colston Bassett (Mar. 12).

Staffs. 162, Queen Street, Walsall (Mar. 12).

Suffolk. Home Farm, Somerleyton, Lowestoft (Mar. 14).

Surrey. 24, Little Woodcote Estate, Wallington (Mar. 13).

Wilts. Bury Farm, Codford, Warminster (Mar. 13).

Yorks. Piggeries rear of 13a, Church Road, Robert Town, Liversedge (Mar. 13).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Diagnosis of Warfarin Poisoning by Chemical Methods

Sir,—Recent conversations with practising veterinary surgeons have led me to the conclusion that the statement made by McGirr at the 74th Annual Congress of the British Veterinary Association (McGirr, 1956) that "satisfactory and reliable chemical methods for the detection of warfarin in relicta are not available" is believed to be correct. This is not so. A method is available for the detection of warfarin and the allied rodenticide, coumachlor, in *post-mortem* material (Garner, 1956), and it seems probable that warfarin poisoning may readily be diagnosed in the live animal also by chemical examination of the urine.

The method relies upon demonstration of the characteristic ultra-violet absorption spectrum of warfarin. After extraction of the rodenticide from acidified macerated material (preferably liver or gut contents) using an ethanol-ether mixture, the ethanol is removed by washing with water and the warfarin transferred from the ether into 2 per cent. aqueous sodium pyrophosphate (*not* 8 per cent. as stated in the original paper) and then, after acidification of the latter solution, into chloroform. The chloroform solution is chromatographed on alumina and, after washing away impurities with ether, the warfarin is eluted with 96 per cent. ethanol. Glacial acetic acid is added to the eluate to a concentration of 1 per cent. (v/v), and the solution examined in a suitable instrument for absorption maxima at 271,282 and 306 μ.

In rats it has been found that oral administration of warfarin is followed, in 24 to 48 hours, by the excretion of a substance extractable with chloroform but not with ether, and which possesses absorption maxima at 257, 261, and 282 μ, that at 257 μ being of the greatest magnitude. The presence of a similar compound has been demonstrated in the urine of a pig poisoned with coumachlor. It seems probable that the detection of an ultra-violet absorption spectrum of this type in urine from suspected cases of warfarin poisoning would provide a definite diagnosis and allow the correct therapeutic measures to be taken.

Full details of the work upon which this summary is based will be published elsewhere. The purpose of this note is to bring to the attention of practising veterinarians and others that a chemical method for the detection of warfarin in biological material does exist.

Yours faithfully,
R. J. GARNER.

3, The Walks North,
Huntingdon.

March 16th, 1957.

References

GARNER, R. J. (1956). *Nord. Vet. Med.* **8.** 514.
McGIRR, J. L. (1956). *Vet. Rec.* **68.** 902.

Animal Boarding Establishments Bill

Sir,—I cannot see that within the provisions of the above Bill our profession is justified in asking for privileged exclusion from the very much needed inspection system for such premises. The fact that we have special professional responsibilities in this matter, far from giving us the right denied to others, of running boarding places free from inspection, should make us more than agreeable to have such inspection.

Competing non-professional establishments under this Bill may be granted public certificates denied to veterinary surgeons.

It may also be true that some degree of protection from complaining clients would be afforded by such certificates from an inspecting authority.

Yours faithfully,
JOHN M. MITCHELL.

101, Sternhold Avenue,
Streatham Hill,
London, S.W.2.

March 11th, 1957.

Endocrine Alopecia in the Dog

Sir,—The interesting article by Messrs. Campbell and Mortimer, entitled "Endocrine Alopecia in the Dog," describes a case of loss of hair in an aged male Bedlington, associated with skin pigmentation.

The history and the fact that the testicles appeared smaller and softer than normally, suggest testicular degeneration with the production of an oestrogen as a likely cause.

I regret I have not the references at hand but they can be traced if one looks up my contributions on "Testicular Neoplasm Associated with Sex Inversion" (*Vet. Rec.* **61.** 325, 510). These include a paper writen by myself in conjunction with Mr. P. W. Daykin originally entitled "Sertoli Cell Tumours in

Old Dogs," which we published only to find that the subject had previously been dealt with in the *Journal of Comparative Pathology* some years previously by Dr. Rewell.

Sertoli cell tumour is rather a misnomer for the testicles are usually shrunken but may exhibit a slightly harder centre or periphery of about 3 to 5 mm. in diameter, which when sectioned appears light salmon pink or else yellowish in colour. Microscopically, this shows degeneration and loss of interstitial cells and an enormous increase in Sertoli cells which occupy the greater portion of the affected area. Only one testicle usually is involved.

The symptoms shown include alopecia, a bluish pigmentation of the skin especially over the lower abdominal wall, a shrunken but curiously pendulous prepuce, very obvious in the illustration, and later, in cases kept under observation, sex inversion and a marked attraction to males.

On treatment by castration or by weekly injection of a gonadotrophic luteinising hormone, rapid and luxuriant hair growth follows which is complete within three months.

I contribute this letter in the hope that it may help in determining the particular endocrine involved.

Yours faithfully,

R. H. SMYTHE.

6, Peveril Drive,
The Park,
Nottingham.

March 16th, 1957.

The Post of Public Relations Officer

Sir,—The appearance of the B.V.A.'s advertisements for a Public Relations Officer in recent issues of THE RECORD has been most cheerful. It has provided reassuring evidence of our Association's advance with the times, it has created a talking point of interest, it has provided Mr. Massey's pen with comment more arresting, though a little less serious, than any 10-instalment serial on moribund mice, and your correspondence columns have been furnished with words of wisdom and warning for the B.V.A. from Messrs. Fennell and Hignett. The letters from these two gentlemen show their criticisms to be founded on the following main points:—

(1) Inadequate salary; (2) unsuitability of an M.R.C.V.S. for a P.R.O. post; (3) the exclusive ability of experienced P.R.O.s to perform the functions of this post with the B.V.A.

If I may be allowed to reply to those gentlemen on these points, I think it would be in keeping with the previous correspondence on this topic to deal with them the wrong way round.

(3) The ranks of the Public Relations Officers are closed against intruders, and the widely circulating assumption that experienced P.R.O.s cannot be overlooked in public relations work has been created entirely by the propaganda undertaken by P.R.O.s on their own behalf—and is a testimony to the suitability of experienced P.R.O.s for publicising P.R.O.s. It is admitted that an experienced P.R.O. would be well qualified for this particular post with the B.V.A., but such suitability would not necessarily be exclusive or even extreme, nor would it be greatly increased by Mr. Hignett's suggested secondary requirement of some knowledge of animal husbandry.

(2) If we assume that an M.R.C.V.S. about to embark on public relations work knows nothing whatsoever about that work, we can assume no worse. It has been suggested by Mr. Hignett in an unsupported statement, and by Mr. Fennell with a flimsy argument, that such a person could not learn the job.

Consider certain facts. The veterinary surgeon, by virtue of his qualifications, has shown possession of a certain level of intelligence, but more important in this case, he has shown that above all he can learn a new subject with rapidity. In his training he was obliged to learn a dozen major subjects to an advanced degree, each in a matter of months and no less than two at a time. One more should not be too much for him.

Consider for the moment the average veterinary practitioner wending his way continuously through the community in its widest range, having to earn his living as he goes. I suggest that there is the very foundation of public relations work, there is the original public relations worker (for who was there before the experienced P.R.O.s?).

I believe that in this venture by the B.V.A. it will be more important to have the individual presenting the case of the veterinary profession, as a member of that same profession, than as a hired announcer, however polished, and however knowledgeable on animal husbandry.

(1) Criticism has been made that the salary is not high enough, being within the salary range of assistants in practice, yet the critics who make this point also say that the post cannot be filled adequately with an M.R.C.V.S. If so, why should the salary be any higher? Furthermore I suggest that the salary quoted is one to which existing P.R.O.s would not be unattracted.

Another aspect of the remuneration is the realisation that the member of the profession who becomes the successful candidate will in a sense be honoured by the trust of his colleagues. Those of us who have applied for the post realise this. That, Sir, is the fundamental difference between the man the Association needs and the professional publicity man advocated by your correspondents.

My necessary anonymity is regretted.

Yours faithfully,

AN APPLICANT.

March 5th, 1957.

Broadcasts by the Midland Radio Vet.

Sir,—I was intrigued to see that there is a bevy of broadcasting " bods," and I was highly amused by the two gentlemen who hastened to say: " Not me, chum." Unfortunately none of them answered one of the points of my first letter which was: " Are these broadcasts censored by another veterinary surgeon?"

Regarding the statements by the gentlemen of the first part, namely the Midland Radio Vet., hereinafter referred to as the M.R.V.:—

I do not doubt that the M.R.V. is a very experienced practitioner but this does not qualify him to be a very experienced broadcaster. This amplifies the position of the P.R.O.

I realise that these broadcasts are only allowed five minutes and that was one of the main points of my first letter, that an ambiguous statement was made in the first programme and was not qualified until the second programme, a month later.

I will try the procedure recommended by the M.R.V. on my next calving case, and I am sure that his method will be equally successful as my own.

The M.R.V. missed the point of my reference to abbreviation. In my opinion, as long as a man is respected by his friends and his clients, it matters not whether he is called Briar, Rambler, or Rodon-Rosa.

Yours faithfully,

E. E. HERROD-TAYLOR.

Guy Street,
Leamington Spa.

March 11th, 1957.

Herd Infertility

Sir,—I must thank Mr. J. B. White for his encouraging and constructive comments on my article.

It is a fact that the mucus test was applied to some herds using A.I. alone at the time of the investigations. This enabled a check to be maintained on the A.I. bulls and also showed up the presence of reactors with a previous history of natural service contacts.

My findings were reported in order to give a general indication of the factors associated with herd infertility in the area involved, and I am well aware that the sampling of all the herds investigated would have given a much more accurate indication of the rôles played by *Vibrio fetus* and *Brucella abortus* infections, and this would have been done, if time had been available. No doubt the reports of several full-time research workers, at present carrying out field surveys of the factors associated with infertility, will throw more light on this problem.

The existence of accurate breeding records and A.I. bull records greatly facilitated the location of causal factors in the herds using A.I. Provided a close study is made of the feeding of a herd including the analysis of foodstuffs for trace elements, if indicated, there is no reason why many herd infertility problems, associated with nutritional factors, should not be cleared up.

Yours faithfully,

I. B. MUNRO.

Cattle Breeding Centre,
Ringsfield Road,
Beccles,
Suffolk.

March 11th, 1957.

Displacement of the Bovine Abomasum

Sir,—We cannot allow the letter of 2nd inst. by Messrs. Williams and Lloyd to pass without comment.

From December, 1950, to April, 1956, one of us (C. W.) observed 29 cases, of which 16 were confirmed on laparotomy. These 16 animals were treated by various surgical methods, and the paper published on February 2nd, 1956, was based on the limited experience gained.

Since this paper was prepared, we have encountered six cases, all of which have been subjected to the double laparotomy and fixation method of treatment with certain modifications listed below:—

Both laparotomy wounds are brought closer to the rib and slightly lower to facilitate manipulation.

The difficulty of making a clean right-flank incision has been overcome by entering the peritoneum at the lower commissure of the muscle wound.

The canula has been replaced by a large-bore hypodermic needle and this eliminates the necessity of picking up the abomasal wall and of suturing the abomasal wound.

The pylorus is identified as the only solid structure found floating free in the right side of the abdomen, and it will withstand reasonable traction.

We prefer two operators as we find that a little "pushing" on the left reduces the amount of "pulling" on the right.

We cannot agree that borborygmal sounds are diagnostic of the condition, since we have observed them in the following:—

Chronic actinobacillosis of the fore stomachs; carcinoma of the cardia; sacculation of the lower oesophagus; some starvation cases; vague digestive upsets of unknown aetiology which recover without treatment.

A firm diagnosis can only be arrived at by a careful consideration of case history, symptoms, and clinical signs. As an aid to diagnosis we have used a long, large-bore hypodermic needle directed into the tympanitic viscus before laparotomy. This allows the escape of gas which has no ruminal flavour.

In no case has rumeno-abomasal adhesion been observed. Adhesions have, however, been observed in three cases:—

(1) Animal with diaphragmatic adhesions, which was forwarded to Glasgow Veterinary School for teaching purposes and later reported on by Marr and Jarrett.

(2) Animal with coincidental localised omentitis, which broke down easily and did not greatly interfere with the operation.

(3) Animal with omental adhesion to abdominal floor at site of previous umbilical operation. This greatly interfered with operation as it reduced the space available for retraction of the abomasum.

The method suggested by Messrs. Williams and Lloyd does not include fixation, a step which we con-

sider to be important in order to prevent recurrence at a future date. Furthermore, taping the rumen does not allow of an aseptic operation. We are pleased to note that success attended their first double laparotomy treatment of this condition.

Yours faithfully,
COLIN WOOD.

"Ingleton,"
Milehouse Crescent,
Edinburgh Road,
Dumfries.

COLIN J. ALLISON.

"Kopje,"
Castle Douglas Road,
Dumfries.

March 4th, 1957.

Surgery of the Eye in Animals

Sir,—I was surprised to read Mr. Smythe's rather derogatory remarks on the use of carbolic acid for corneal ulceration in the dog (*Vet. Rec.* **69.** 322). Upon the advice of our local human-eye surgeon, I have used this agent with dramatic success in several cases of chronic corneal ulceration in the dog.

The technique is very simple and requires no special instruments apart from an eye speculum. The dog is anaesthetised with thiopentone sodium intravenously and the eyelids are held open with the speculum. The surface of the ulcer is then dried thoroughly with strips of fine blotting paper. Using a pointed matchstick, which has been dipped in the pure phenol and shaken to remove any excess, the ulcer is touched over its entire surface and a narrow margin of healthy cornea around it is also treated. The surface is again blotted and antibiotic eye ointment is applied. The treated area forms a white coagulum which sloughs off in about 10 days leaving a healed epithelium underneath. Usually all that remains to mark the site is a faint, bluish haze in the cornea. It is very important that the phenol does not come into contact with the conjunctiva or serious sequelae may ensue.

Turning to another subject, I have encountered a case of thrombosis of the posterior aorta in an aged cat, which exhibited the syndrome described by Miss Freak and Miss Joshua. *Post-mortem* examination revealed a firm clot about half an inch long in the posterior aorta just anterior to its bifurcation. I would therefore like to support the two ladies' contention that thrombosis is a not uncommon accident in the cat.

Yours faithfully,
G. T. WILKINSON.

Orford Place,
Norwich.

March 9th, 1957.

Right Aortic Arch Causing Oesophageal Obstruction

Sir,—I was very interested in the two papers on oesophageal obstruction in this week's RECORD. Two such cases have come my way.

The first is of interest in that although the dilatation was adequately diagnosed, the underlying cause was not appreciated. This case occurred some six or seven years ago, before I had seen any reports on similar conditions. I decided to excise most of the dilated sac to reduce the oesophagus to something approaching normal size. This I did through a presternal approach. Having excised the sac and sutured the oesophagus I passed a probang to see that the passage was clear. I can only assume that the probang *en passant* ruptured the ligamentum arteriosum as the dog made a complete and permanent recovery! I am moved to report this case to illustrate two points:—

(a) The foolishness of operating without adequate knowledge of the condition. (This is a generalisation!)

(b) That excision of the dilatation is feasible and desirable and should present no great difficulties if carried out through the right approach!

The second case occurred some years later but unfortunately the owner would not agree to operation, and the dog, a Labrador, was destroyed.

Yours faithfully,
N. R. TURNBULL.

65, Worting Road,
Basingstoke,
Hants.

March 10th, 1957.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN
Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-Mouth	Fowl Pest	Sheep Scab	Swine Fever
16th to 28th February, 1957		21	—	—	29	—	30
Corresponding period in	1956	212	1	4	13	—	25
	1955	33	—	—	29	—	53
	1954	8	—	5	83	—	54
1st January to 28th February, 1957 ...		72	2	11	191	—	139
Corresponding period in	1956	500	2	4	125	—	103
	1955	184	—	5	140	—	193
	1954	44	—	8	319	—	224

For the *complete treatment* of calf scour and enteritis in all species

WHATEVER THE CAUSE OF ENTERITIS and whatever the animal (domestic, zoological or laboratory) 'Stromez' cannot fail to bring about a rapid improvement. It contains full therapeutic doses of 'Sulphamezathine', streptomycin and kaolin, for combined systemic and local action.

'STROMEZ'

Available in boxes of five 100 gramme envelopes, from which the product name can be torn off, leaving a blank label for the veterinary surgeon's directions.

Advantages of 'Stromez'

- ★ Full doses of 'Sulphamezathine' and streptomycin.
- ★ Wide range of activity.
- ★ Decreased possibility of resistance.
- ★ 'Stromez' mixes readily with water to form a suspension which is stable for six months.

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NOTICES

Western Counties Veterinary Association

THE 73rd Annual General Meeting of the Association will be held at the Rougemont Hotel, Exeter, on Thursday, March 28th, 1957, at 2.15 p.m. The President, A. Mather, Esq., M.R.C.V.S., will occupy the chair.

Minutes; Correspondence; Nominations; Election of new members; Resignations; Annual report of Hon Treasurer; Annual report of Hon. Secretary; Election of officers; Reports from representatives on A.I. committees; Reports from representatives on B.V.A. Council; Presidential address. Inauguration of new president. Any other business; Address "Salmonellosis of Calves," by H. G. Harvey of St. Columb.

Tea will be served at approximately 4.45 p.m.

J. A. DALL, *Hon. Secretary.*

Midland Counties Veterinary Association

A GENERAL Meeting of the Association will take place at the Green Dragon Hotel, Hereford (Telephone. Hereford 2576), on Wednesday, April 3rd, 1957, commencing at 2.30 p.m.

The President, Mr. S. V. Collard, M.R.C.V.S., will take the chair

Tea will be served at 4.30 p.m. All members of the profession will be heartily welcomed.

AGENDA

Minutes; Correspondence; B.V.A. Council Report; Paper: "Some Aspects of Metabolic Disorders in Cattle," presented by Mrs. R. Allcroft, PH.D., B.SC., of the Ministry of Agriculture, Fisheries and Food Veterinary Laboratory, Weybridge; Election to membership; Any other business.

G. V. LAUGIER, *Hon. Secretary.*

Central Veterinary Society

AN Extraordinary General Meeting of the Central Veterinary Society will be held on Thursday, March 28th, 1957, at the Royal Veterinary College, Camden Town, N.W.1., by kind permission of the Principal.

The President, Mr. C. E. Woodrow, will take the chair at 6 p.m.

AGENDA

To receive a statement from Mr. O. G. Jones, M.R.C.V.S., concerning the proposed out-patients' clinic attached to the Veterinary Hospital at the Zoological Society of London, Regents Park.

BRUCE V. JONES, *Hon. Secretary.*

PUBLIC APPOINTMENTS

MILK MARKETING BOARD ARTIFICIAL INSEMINATION

APPOINTMENT OF ASSISTANT VETERINARY OFFICERS

THE Board intends to appoint a number of Assistant Veterinary Officers at its Cattle Breeding Centres including Beccles, Suffolk, and Penrith, Cumberland. These appointments will be for three years and the starting salary will be in the region of £800 per annum according to experience. Training in A.I. will be arranged and transport will be provided by the Board. Preferences will be given to recent graduates, or those about to graduate, who are interested in problems of bovine fertility and who have some experience in cattle practice. Assistant Veterinary Officers will be under the supervision of the Board's Senior Veterinary Staff in which, as vacancies occur, appointments are liable to be made from the A.V.O. group.

In applying candidates should provide the usual information as to age, nationality and education. If the testimonials giving evidence of work done and practical experience already gained are available, they should be forwarded. Application should be made within 14 days of the appearance of this notice to The Senior Staff Officer, Milk Marketing Board, Thames Ditton, Surrey.

HOUGHTON POULTRY RESEARCH STATION. HUNTINGDON

APPLICATIONS are invited for a Senior Research Officer to take charge of the Sections of Virology and Pathology at the above institute. Candidates should either be members of the Royal College of Veterinary Surgeons or possess a qualification registrable with that body. Appointment, in the Principal Scientific Officer (£1,295 to £1,850) or Senior Principal Scientific Officer (£1,900 to £2,200) grade according to age and experience. Superannuation under F.S.S.U. Further particulars may be obtained from the Director with whom application giving the name of two referees should be lodged not later than May 31st, 1957.

PUBLIC APPOINTMENTS

MAKERERE COLLEGE
THE UNIVERSITY COLLEGE OF EAST AFRICA

APPLICATIONS are invited for a Lectureship in Veterinary Physiology from candidates with a Veterinary qualification. Salary scale: £1,107 to £1,617 p.a., entry point determined by qualifications and experience. F.S.S.U. Child allowance £50 p.a. per child (max. £150 p.a.). Passages for appointee and family (up to four adult passages) on appointment, termination and overseas leave (three months every 21 months). Rent according to quarters provided £45 to £85 p.a. (including basic furniture).

Detailed applications (six copies) naming three referees to be received by June 5th, 1957, by Secretary, Inter-University Council for Higher Education Overseas, 29, Woburn Square, London, W.C.1, from whom further particulars may be obtained.

THE Edinburgh and East of Scotland College of Agriculture invites applications for the post of Assistant Veterinary Investigation Officer.

Salary £730 (age 23) to £1,065 (age 32 or over), rising to £1,496.

Application Forms and further particulars obtainable from the Secretary, 13, George Square, Edinburgh. Applications should be lodged not later than April 6th, 1957.

APPOINTMENTS VACANT

WE should like to thank those members who responded to our recent advertisement and to assure them that our replies will be completed as soon as possible.—Bayliss & Callow, South Molton.

FOURTH member, male or female, required in expanding small-animal practice, outskirts London. Experience essential. Will be required to undertake good deal of surgical work. Preference will be given if particularly interested in this field, and every reasonable facility will be provided. X-ray. Commencing salary £900 to £1,250, depending on experience and ability, with regular increments. On call one week-end in three, and two nights a week. Partnership will be offered eventually, but not for several years. Unfurnished or party furnished large self-contained two-bedroomed flat available if required. A house will become available or assistance would be given to purchase a house if necessary. Please give details of past experience, age, etc. Duties to commence June 1st.—Box 427.

LOCUM required, mixed practice Midlands, for fortnight, as soon as possible. References. Locum fees arranged.—Box 428.

ASSISTANT required, married man preferred, for expanding mixed town-and-country practice, Nottinghamshire. Good salary and facilities. Car provided. Must be capable surgeon.—Box 429.

CAPABLE assistant required in mainly large-animal practice with view to succession if mutually agreeable. Unfurnished house available. Own car an advantage.—Box 430.

LADY assistant required for small-animal side of busy mixed practice. Must be experienced in surgery. Good salary and working conditions. Apply Lang and Jack, 2, Regent Terrace, Doncaster.

ASSISTANT or locum, either sex, required for small-animal practice, London, W. Locum, live in.—Box 432.

ASSISTANT required, preferably married, not afraid of hard work, to take charge of a branch practice in the south. Rent and rate free house provided. Good salary and organised leisure. Prospects for suitable candidate. Full particulars to Box 433.

MALE assistant required end of April. Preferably eligible L.V.I. House available. Salary according to experience. Apply Abbott & Polden, St. Leonard's House, Bodmin.

EXPERIENCED male graduate required mixed practice, South-east England, preferably eligible L.V.I. Salary up to £1,000 according to experience, together with house if required. Apply Box 435.

ASSISTANT required in mainly agricultural practice. Modern semi-detached bungalow available.—Harry M. Wilson, 134, Bonnygate, Cupar, Fife.

APPOINTMENTS VACANT

CAPABLE assistant required in large-animal practice. Unfurnished flat available. Rota for leisure and night duty. Latter averages two nights weekly.—J. McLintock, Orford Place, Norwich. Phone: 33080.

MEMBER wishes to contact another (preferably lady member) who would help in small-animal practice, part time. London, N.W.—Box 438.

MALE assistant required for junior position in mixed practice, South-east of England. Salary £700, together with house if married. Apply Berry & Miller, Broad Oak, Cranleigh, Surrey.

AGRICULTURAL practice requires experienced assistant. Commencing salary £1,000 by six-monthly increments of £50 per annum to £1,200. Accommodation provided. Use of car.—Box 440.

MEMBER required urgently mixed practice, South-west. Good salary and organised leisure. Unfurnished house available. Seaside resort.—Box 441.

SENIOR married assistant required in mixed country practice North-east England. Must be capable person keen on work, eligible L.V.I. Good terms and conditions. Interview essential, expenses paid.—Box 408.

ASSISTANT required, temporary or permanent in agricultural practice North-east England. Preferably single and L.V.I. Salary £80 per month. Use of car and organised leisure. Every assistance will be given a keen young graduate.—Box 409.

ASSISTANT required, mixed practice, South Yorkshire. Regular evening leisure, alternate week-ends. Modern ideas essential. Salary £1,000 with prospects.—Box 410.

WANTED, married assistant, mixed country practice. Furnished house available. Good terms and conditions, recently qualified might suit. Give full details. Interview expenses paid.—Box 411.

LOCUM required during two weeks in June for small-animal practice Manchester area. Good extra salary if wife available to manage house.—Box 412.

MALE assistant required in agricultural practice, South Devon. New graduate suitable.—Box 413.

SINGLE male assistant required in large progressive mixed practice in Essex, preferably eligible L.V.I., but recent graduate would suit. Regular leisure, use of car. Easy access to London and coast. Interview essential, expenses paid. Salary adequate.—Box 414

LOCUM wanted, single man, June 27th to July 13th, for mainly small-animal practice, South Coast. Car provided.—Box 415.

LOCUM required, mixed practice. Good salary and expenses. June 15th, two weeks. August 16th, two weeks.—Browne & Hammond, 7, Marsh Street, Walsall 5606.

ASSISTANT, male or female, preferably eligible L.V.I., required in mixed practice, South-east. Recent graduate considered. Salary from £700 according to experience. Partnership considered if suitable after probationary period.—Box 417.

MARRIED or single assistant required, agricultural practice, market town, pleasant rural district, Midlands. Commencing salary £1,000 or according to experience. Lay assistance. Furnished flat available or house found. Use of car for regular leisure. Interview expenses paid.—Box 450.

ASSISTANT required for largely agricultural practice. Salary £800 to £1,000, depending on experience. House available.—Fawcett, 90, Winchester Road, Basingstoke. Telephone: Basingstoke 680.

FIRST assistant required for rapidly expanding agricultural practice. Commencing salary £850 to £1,000. House available if required. South.—Box 453.

Address for communications for:—

The General Secretary, B.V.A. ... ...

The Editor (to whom literary matter and correspondence relating thereto, also professional advertisements and remittance therefor, should be forwarded) ... ...

Replies to advertisement Box numbers ... ...

7, Mansfield Street, Portland Place, London, W.1.

APPOINTMENTS VACANT

SINGLE male assistant required in up-to-date mixed practice chiefly dairy cattle. Well equipped surgery with X-ray. Generous salary, leisure and use of modern car. Eligible L.V.I. preferred, but not essential. Also temporary assistant with possibility of permanency.—Baxter & Forsyth, Lechlade, Glos.

MID-WEST. Keen young member accustomed dairy practice required to assist agricultural/small-animal (including surgical) work. Wide experience unnecessary. Pleasant country. Good centre offering excellent opportunities advancement. Modern detached house (three bedrooms, mains services) now vacant.—Box 451

CAPABLE assistant required agricultural practice. Good unfurnished flat available. Regular leisure, use of car. Good salary with excellent financial prospects to right man.—Hearn & Betty, Kingsteignton, Newton Abbot, South Devon.

LOCUM, temporary assistant, required two to three months, July, August, September, £25 per week plus Ministry mileage.—Whittlestone & Mactaggart, MS.R.C.V.S., Sheffield, 2.

SINGLE male assistant required for extensive agricultural practice, South-west. Organised leisure with use of car. Commencing salary £780 to £900 according to experience and capability, with annual increments. References essential and must accompany application.—Parsons & Vickery, Exeter Street, Launceston.

SINGLE assistant required, mixed practice North Midlands. Commencing salary £850. Organised leisure, use of car. Interview expenses paid.—Box 397.

LOCUM required to take part charge mixed practice for period(s) totalling four weeks, June to August Car supplied.—Box 390.

LOCUM required from August 17th to August 31st inclusive. Small-animals only. Car provided London, N.W.—Box 400.

KEEN experienced assistant required for mainly agricultural practice in Plymouth vicinity. No partnership considered at this juncture. Salary by arrangement in region of £1,000.—Box 401.

EXPERIENCED capable temporary assistant required immediately in agricultural practice in East Cornwall. £4 daily, car provided.—Box 402.

LOCUM or temporary assistant required immediately, mixed practice, Yorkshire, West Riding. Top salary.—Box 390.

ASSISTANT required in London small-animal practice Capable surgeon. Regular increments. Recent graduate might suit.—Box 391.

SINGLE male assistant required. Good salary, congenial agricultural practice Yorkshire market town. Live out. No evening surgery. Well organised leisure with use of car. Well worth an inquiry for more details. Interview expenses paid.—Box 394.

ASSISTANT wanted in large-animal practice, South Devon. L.V.I. preferred but not essential. House available if required. Good conditions and salary. Regular leisure with use of car.—Box 396.

SINGLE assistant (male) wanted immediately in busy progressive mixed practice, South-west. Salary from £780 according to experience, with annual increments. Regular leisure, use of car. Good references essential. Interview expenses paid.—Box 392.

SINGLE male assistant required for mixed practice in Midlands. Use of car for leisure, regular off duty.—Box 371.

LOCUM required mainly small-animal practice, North London, May 4th to 18th. Own car if possible.—Box 372.

MALE assistant required as soon as possible for mixed practice. Married or single. House available. Salary according to experience.—Hudson & Arnold, London Road, Kettering, Northants. Tel: 2200.

MANAGER required for branch of mainly small-animal practice. Surgical experience essential Unfurnished three-bedroom house with garage, garden and surgery, rent free. Salary plus percentage of turnover and allowance for domestic staff. Apply with references to Aulton, 4, Uxbridge Road, Stanmore, Middlesex.

APPOINTMENTS VACANT

YOUNGER married member with some experience dairy cattle and wishing extend knowledge other branches. Permanency. Good scope advancement. Convenient house if required, Southern England.—Box 376.

ASSISTANCE required, male or female, full or part time in a growing mixed practice near London. Mainly small-animals. Modern conditions. Surgical ability important. Interview expenses paid.—Box 366.

LOCUM—assistant required mixed country practice, August 7th to September 7th inclusive. Own car advantage.—Orton & Allen, Fordingbridge, Hants.

LOCUM required from May 20th to June 1st. Mainly large-animal practice. Car supplied.—Gooch, Farmfield, Lutterworth, Rugby.

ASSISTANT required small-animal practice. High proportion of surgical and radiographical work. Commencing salary £900. Regular leisure and use of car.—G. T. Wilkinson, 602, Dereham Road, Norwich.

OWING to sudden death of senior partner, experienced assistant wanted in mixed practice with view to early partnership. Sound experience light horse work an advantage.—Hunting & Thomas, 15, Forest Road, Loughborough, Leics. Tel: 21.7.

ASSISTANT required in small mixed practice, country town, South Midlands. Regular leisure with use of car. Prospects.—Box 362.

MARRIED assistant, eligible L.V.I., required for mixed mainly large-animal practice. Good prospects.—Simison, Thurso, Caithness.

WANTED, temporary assistant or locum for large mixed practice in South. Very good salary. Full particulars to Box 320.

ADDITIONAL assistant required, mixed mainly dairy practice, eligible L.V.I. Salary from £800 p.a. according to experience with fixed increases. Regular time off. Unfurnished house would be made available to married member if required. Own car or car provided. Interview expenses paid.—Jagger & Wilding, Shrewsbury.

ASSISTANT required, keen on small-animal work. Car provided. Furnished or unfurnished accommodation available. Interview expenses paid.—Box 336

SINGLE male assistant required agricultural practice Regular organised leisure. Good salary, excellent facilities, lay staff.—Yarrow, 110, Corve Street, Ludlow. Phone: Ludlow 24.

EXPERIENCED married assistant required in four-man mixed practice in South, with or without view to partnership. Eligible L.V.I. Unfurnished house available, rent free. Salary from £950 p.a.—Box 346.

CHESHIRE. Experienced married assistant required before end of April. General mixed practice mainly agricultural. Must be good surgeon, energetic, capable of taking charge. Eligible L.V.I. Definite prospects suitable man. Ample leisure, use of car. Modern new house available, attractive gardens. Interview expenses paid. Salary £1,000 with increments. —Box 347.

WANTED, as soon as possible, male assistant (single) in large mixed practice in Cheshire, mainly agricultural. Good commencing salary and generous time off. Apply A. J. Wright, c/o Wright & Munro, Macclesfield.

MALE assistant required in four-man agricultural practice. Salary £900 minimum. Half day once weekly with alternate week-ends. Use of car. Interview expenses paid.—Williams & Owen, Abergavenny.

LOCUM required for two months in large-animal practice. Excellent position for recently qualified graduate to gain experience.—Box 1648.

SMALL-ANIMAL practice requires assistant with definite prospects of partnership. Interest in surgery essential. Modern premises with all facilities, Sussex. Interview expenses paid.—Box 448.

LOCUM tenens available for small-animal practice. Radiologist and surgeon, male, dependable and experienced, own car. Southern counties preferred.—Box 456

APPOINTMENT REQUIRED

EXPERIENCED member, wishing to settle in country practice, seeks temporary position with view to permanency. £100 per mensum.—Box 444.

APPOINTMENTS REQUIRED

1951 GRADUATE, single, L.V.I., requires post in agricultural practice anywhere outside United Kingdom considered. Free after Easter.—Box 422.

1953 GRADUATE, L.V.I., married, own car, requires position in agricultural or mainly agricultural practice in South or South-east.—R. M. Samuel. Tonbridge 2150.

EXPERIENCED married 1951 graduate, now managing branch, seeks position with older member who wishes to retire in next two years, with view to succession.—Box 426

MR. G. C. LANCASTER, F.R.C.V.S., Eastwick House, Evesham. Phone No. 6095 for locums or short periods.

MR. E. KEMPTON GATFIELD undertakes locums, management, etc.—62, Langsett Avenue, Sheffield, 6. Phone: 48471

PRACTICES REQUIRED

TWO members wish to purchase agricultural practice in Midlands towards end of year. Reply Box 421.

MEMBER wishes to purchase small-animal practice in good-class residential district in Midlands or Southern England.—Box 447.

PRACTICE FOR SALE

A WEST country practice will be for sale later this year, 90 per cent. large-animal. Gross turnover £4,000 to £5,000. Private practice only. Genuine inquiries welcomed.—Box 455.

ESTABLISHED small-animal practice with boarding kennels, South Devon coast resort. Freehold family house, four bedrooms, three sitting rooms. Brick kennel premises, surgery and garage. All amenities. Audited accounts. Capital necessary.—Box 330

PARTNERSHIPS

TWO partners require third equal partner to take over retiring partner's share. Capital essential. Three months probationary period. Mixed practice South-west. Excellent opportunity.—Box 442.

MEMBER with extensive experience of small-animal work seeks post offering opportunities for surgery. Partnership essential, but willing to work for trial period. Some capital available, unless house has to be purchased. Not free until late summer.—Box 443.

PARTNER required immediately in mainly large-animal practice in the South-west. Small capital outlay. Excellent opportunity for progressive member —Box 445.

ONE-third partnership available, large mixed practice, South-west England. Reasonable probationary period. Some capital essential.—Box 446.

MISCELLANEOUS

HUNGARIAN refugee, veterinary student, 4½ years university (Budapest and Gödöllö), seeks employment in this country to improve his English with a view to qualifying as M.R.C.V.S. Has completed agricultural and animal breeding section of training and has been employed on milk hygiene and technology.—Box 457.

OPPORTUNITY for student to gain practical experience in large riding stables and kennels. For particulars apply Stamford Kennels, Lymm Road, Altrincham, Cheshire. Bucklow 2103.

SENIOR surgery attendant. Experienced handling clients, car driver. Familiar all veterinary problems required by veterinary surgeons in Cheltenham Furnished bed-sitting room with cooker provided.—Box 384.

RECEPTIONIST required in mixed practice, Sussex. Clerical, phone duties, and assist in operations. Live out. Interview essential.—Box 385.

CANINE nurse required, S.E. England, residential. Good hospital facilities with large number of surgical and other cases. No boarding. Experience preferred but not essential. Regular leisure.—Box 331

WANTED, experienced canine nurse/receptionist of good address. Must be expert stripper all breeds. Capable manage staff, kennels, live good home, London References essential.—Box 353.

MISCELLANEOUS

VETERINARY surgeons required. Full-time employment. No private practice. Salary £650 per annum, rising to £725 in three years, thereafter by arrangement. Write with full particulars to General Secretary, P.D.S.A., Clifford Street, London, W.1.

VETERINARY surgeon in Berkshire requires kennel girl, surgery work and stripping. Interview essential.—Box 356.

WANTED, big, bold Alsatians. Also all breeds of pedigree adults and puppies. Adult bitches wanted for blind guide dogs.—Stamford Kennels, Lymm Road, Altrincham, Cheshire. Bucklow Hill 2108.

WANTED, exchange and for sale, adult Alsatians, Labradors, all breeds pedigree puppies. Obedience training a speciality.—Stamford Kennels, Lymm Road, Altrincham, Cheshire. Bucklow 2108.

LOST, believed stolen, February 19th, male Schipperke, 18 months, black. Recent dew-claw operation, left hind.—Ritchie, 50, Salford Road, London, S.W.2. Tul 3689.

NAME-PLATES in bronze, brass and plastics.—Send required wording and size for free sketch and estimate to Abbey Craftsmen Ltd., 78, Osnaburgh Street, London, N.W.1. Euston 5722.

PETROL, time and telephone calls saved by two-way radio contact with your cars. We specialise in large and small systems in S.W. England.—R.E.E. Telecommunications, Greenham Mills Works, Crewkerne, Somerset. Telephone Broadwindsor 377.

TUBERCULIN Mallein, etc., may be obtained by members of the veterinary profession from the Royal Veterinary College. Orders should be addressed to the Department of Preventive Medicine, Streatley House, Streatley, Berks. Telephone: Goring-on-Thames 298.

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MISCELLANEOUS

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sider to be important in order to prevent recurrence at a future date. Furthermore, taping the rumen does not allow of an aseptic operation. We are pleased to note that success attended their first double laparotomy treatment of this condition.

Yours faithfully,
COLIN WOOD.

" Ingleton,"
Milehouse Crescent,
Edinburgh Road,
Dumfries.

COLIN J. ALLISON.

" Kopje,"
Castle Douglas Road,
Dumfries.

March 4th, 1957.

Surgery of the Eye in Animals

Sir,—I was surprised to read Mr. Smythe's rather derogatory remarks on the use of carbolic acid for corneal ulceration in the dog (*Vet. Rec.* **69.** 322). Upon the advice of our local human-eye surgeon, I have used this agent with dramatic success in several cases of chronic corneal ulceration in the dog.

The technique is very simple and requires no special instruments apart from an eye speculum. The dog is anaesthetised with thiopentone sodium intravenously and the eyelids are held open with the speculum. The surface of the ulcer is then dried thoroughly with strips of fine blotting paper. Using a pointed matchstick, which has been dipped in the pure phenol and shaken to remove any excess, the ulcer is touched over its entire surface and a narrow margin of healthy cornea around it is also treated. The surface is again blotted and antibiotic eye ointment is applied. The treated area forms a white coagulum which sloughs off in about 10 days leaving a healed epithelium underneath. Usually all that remains to mark the site is a faint, bluish haze in the cornea. It is very important that the phenol does not come into contact with the conjunctiva or serious sequelae may ensue.

Turning to another subject, I have encountered a case of thrombosis of the posterior aorta in an aged cat, which exhibited the syndrome described by Miss Freak and Miss Joshua. *Post-mortem* examination revealed a firm clot about half an inch long in the posterior aorta just anterior to its bifurcation. I would therefore like to support the two ladies' contention that thrombosis is a not uncommon accident in the cat.

Yours faithfully,
G. T. WILKINSON.

Orford Place,
Norwich.

March 9th, 1957.

Right Aortic Arch Causing Oesophageal Obstruction

Sir,—I was very interested in the two papers on oesophageal obstruction in this week's RECORD. Two such cases have come my way.

The first is of interest in that although the dilatation was adequately diagnosed, the underlying cause was not appreciated. This case occurred some six or seven years ago, before I had seen any reports on similar conditions. I decided to excise most of the dilated sac to reduce the oesophagus to something approaching normal size. This I did through a presternal approach. Having excised the sac and sutured the oesophagus I passed a probang to see that the passage was clear. I can only assume that the probang *en passant* ruptured the ligamentum arteriosum as the dog made a complete and permanent recovery! I am moved to report this case to illustrate two points:—

(a) The foolishness of operating without adequate knowledge of the condition. (This is a generalisation!)

(b) That excision of the dilatation is feasible and desirable and should present no great difficulties if carried out through the right approach!

The second case occurred some years later but unfortunately the owner would not agree to operation, and the dog, a Labrador, was destroyed.

Yours faithfully,
N. R. TURNBULL.

65, Worting Road,
Basingstoke,
Hants.

March 10th, 1957.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-Mouth	Fowl Pest	Sheep Scab	Swine Fever
16th to 28th February, 1957		21	—	—	29	—	30
Corresponding period in	1956	212	1	4	13	—	25
	1955	33	—	—	29	—	53
	1954	8	—	5	83	—	54
1st January to 28th February, 1957 ...		72	2	11	191	—	139
Corresponding period in	1956	500	2	4	125	—	103
	1955	184	—	5	140	—	193
	1954	44	—	8	319	—	224